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A  
T R E A T I S E  
O N T H E  
S C U R V Y.

Design'd chiefly for the U S E of the

B R I T I S H N A V Y.

By CHARLES BISSET, Surgeon.



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Printed for R. and J. DODSLEY, in Pall-mall.  
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REAR

ON THE

SCURVY

THE

BRITISH NAVY

BY CHARLES NISSET, Surgeon



LONDON

Printed by J. J. [illegible] in Pall-mall

CHARLES NISSET

[illegible]



To the Right Honourable the

L O R D A N S O N,

And the rest of the

L O R D S C O M M I S S I O N E R S

For Executing the Office of

L O R D H I G H A D M I R A L of Great-Britain,

The following TREATISE is inscribed with the  
greatest Respect, by

Your LORDSHIPS most devoted,

most obedient,

and most humble Servant,

C H A R L E S B I S S E T.

To the Right Honourable the

LORD ALMON

And the rest of the

LORDS COMMISSIONERS

For exercising the Office of

Lord High Admiral of Great Britain

The following Traverse is signed with the  
granted by

Your humble servant

most obedient

and most humble servant

CHARLES BISHOP

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T H E

# INTRODUCTION.

1. **E**FFECTUAL and easily practicable methods of preventing and curing the Scurvy on board of his Majesty's ships at sea, the chief objects of the ensuing treatise, are much wanted for the benefit of common mariners, and must be of importance to these kingdoms in general; especially during a war, when long voyages and cruizes, and the present victuals of the navy, necessarily give rise to epidemical and destructive Scurvies; and when the healths and lives of seamen are of the greatest value to the state.

2. The war which seems impending has induced me to publish this treatise at present, that any advantages it may yield may sooner be reaped by those brave and useful seamen, on whom the wealth and defence

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of

## 2 INTRODUCTION.

of the British dominions so greatly depend : otherwise it was not intended to appear so soon in print ; being only a part of a more considerable work, which exhibits the natural constitution of the atmosphere, and the diseases incident to new-comers, seasoned Europeans, and natives in the West-Indies, and is yet unfinished.

3. Tho' the West-Indian Scurvies frequently differ in some particulars, from those in cold climates, (§ 25. 33, 34.) yet the general methods of preventing and curing the disease, are every where the same : these I have suited, as much as possible, to the situation and circumstances of common sailors on ship-board ; and have made choice of the most simple, and efficacious preservatives and remedies, that may be obtained at a moderate expence, and conveniently carried to, and long kept at sea ; which, together with some precautions recommended, will also be highly conducive towards preventing Malignant, Continued, Remitting, and Intermitting Fevers and Fluxes in unwholesome air, (§ 29. 32. 65.) and abating their dangers. Upon the whole, I flatter myself it will be allowed, that the ensuing treatise on the Scurvy is far from being  
super-



## INTRODUCTION. 3

superfluous, notwithstanding the many excellent writings that have appeared on this subject. Previous to the history of the disease, it will be proper to insert the following particulars (from § 4. to 13.) relating thereto ; which are taken from the chapter of the above-mentioned unfinished work (§ 2.) that is entituled, *The alterations that are produced in the constitutions of the natives of northern climates, by being transported under the heat of a vertical sun.*

The companies of British ships of war, after leaving Madeira, in their passage to Jamaica, are affected in the following manner : (the sun being to the northward of the equator, and approaching the northern tropic ; and the passage from Madeira amounting to <sup>a</sup> seven or eight weeks :) During the first fortnight from Madeira, after getting within the course of the trade wind, they are healthful, chearful, and alert ; the wind being fair, constant, and uniform ; the air dry, heavy, and elastic, and agreeably warm ; the clouds

<sup>a</sup> The passage of King's ships from England to Jamaica is generally protracted in time of war, by convoying transports, store, victualling, and merchant ships ; whereby their companies frequently acquire the Scurvy, which they generally escape in a short passage.

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exceeding high, thin, and white; the gun-ports all open, except some of the lower fore ones, and the ships perfectly well aired, saving the fore-part of the bay. Being advanced near, or under the Tropic, the solid fibres, chiefly at the surface of the body, begin to suffer an extraordinary expansion, and consequent relaxation; the fluids a high degree of rarefaction, and the subcutaneous fat acquires a great laxity and tendency to liquify, by the sudden increment of the solar heat. An effect is at first produced similar to that of the dry bath; the blood-vessels become turgid; the circulation quickens; a great proportion of juices are determined to the relaxed skin, and it is bedewed with a constant breathing sweat, which is very profuse on using smart exercise, drinking hot liquids, or descending into the orlope or lowest deck. As the sun approaches their zenith, in advancing southerly, the propensity to sweating increases; the salutary juices are abundantly evacuated, together with the excrements; the veins at length begin to subside; the velocity of the circulation slackens; the complexion fades; the appetite is a little impaired; the strength and



## INTRODUCTION. 5

sweating diminish; a beginning listlessness invades the whole habit; and the first symptoms (n. 1, 2, 3. of § 16.) of the Scurvy, or a tendency thereto, appear in those who are in the greatest measure thus affected. Being advanced further in their passage, the above-mentioned symptoms are aggravated, and the number of patients speedily increase: in these, the sweat becomes viscid and scanty, and is only forced by hard labour, or the heat of the orlope air, and quickly dries up when these causes cease. About this time some cases often begin to appear of a Continued or Remitting Fever, from a great and sudden degree of the said effects, which is not often fatal, tho' frequently so in its consequences; since it commonly terminates in the putrid, and most fatal species of the Scurvy, (§ 23, 24.) whose progress is swift. About the time they arrive at Antigua, I suppose in the end of the sixth or seventh week from Madeira, and eighth or ninth from the Lizard, the Scurvy is rife on board; several being then in the second, and a few in the third stage of it; and the disease swiftly increases after, both in frequency and virulence, till the ships arrive at Jamaica.



## 6 INTRODUCTION.

5. These unsalutary effects (§ 4.) appear sooner or later, and in a greater or less degree, in the course of a long summer passage from England to Jamaica, according as the crew has had more or less of a scorbutic taint, from a former cruise, at their departure from thence (§ 8. 11.); or have been formerly more or less advanced in the Scurvy (§ 8.); and as they are served with pure or diluted brandy, after the small beer is exhausted (§ 37, 38.): and those adults are affected soonest, and in the greatest degree, who have puny constitutions, or are weakened by a late illness, or that are naturally of a lax and gross habit; especially if old, lazy, or discontented; provided all these (§ 5.) live wholly on the dense, tenacious, and salted ship provisions, and drink nothing but water, besides their allowance of diluted brandy or rum.

6. Adults of clean and sound habits, who live at sea chiefly on fresh provisions, and lye well, and rather airy, over a dry deck, and drink pretty freely of weak punch, or negus, but so as not to intoxicate, are not sensibly affected in their healths, by the quick transition from a cold air, to the heat of a vertical sun and long  
6 voyage;

## INTRODUCTION. 7

voyage; the corroborative quality of these drinks nearly balancing the unsalutary relaxing power of the solar heat; and the fresh diet and salutary nourishment it yields, being easily subdued by the digestive and assimilating powers, no degree of cacochymy is induced. Hence it is, that the captains and principal officers are rarely affected with any scorbutic taint. I never saw any observable degree of the Scurvy in a captain or lieutenant in the West-Indies: these officers are likewise less obnoxious than the common sailors, to every other disease that proceeds chiefly from this great change, from a cold to a foreign sultry climate. Boys, *cæteris paribus*, are the least affected by this great and sudden change, and therefore least obnoxious to the Bilious Fever and the Scurvy, notwithstanding the laxity of their solids <sup>b</sup>.

7. Those who lye in the orlope over the lowest deck, sweat more profusely than the sailors lying between decks; the air of the first, which is mostly under water, being confined, in comparison with the free open air between decks, and exceeding warm: yet the inhabitants of this subaqueous

<sup>b</sup> This is accounted for in the theory of the Bilious Fever.



## 8 INTRODUCTION.

apartment are generally less obnoxious to the Scurvy, than those who are birth'd between decks in the most airy manner. The cause of this seems to be, that the sailors between decks have their skins, when warm and sweating after being at work, or drinking hot liquids, often suddenly dried, and the viscidness of the juices increased by the fresh air blowing in at the gun-ports: this happening frequently, at short intervals, the pores become at length contracted; the juices exceeding viscid and acrid; the perspiration greatly diminished; and a Fever or Scorbutic Cachexy commenceth, according as these effects are more or less great and sudden: but whenever the perspiration of an inhabitant of the orlope is obstructed, he retires to his close and exceeding warm apartment, which seldom fails to solicit a free perspiration and sweating; yet his habit, after being therein long birth'd in the Torrid Zone, becomes considerably relaxed and weakened, whereby he frequently loses, irrecoverably, his complexion, and suffers greatly in his constitution. There is one circumstance indeed which may contribute to make this difference, in point of wholesomeness,



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ſomenefs, appear greater in favour of the orlope, which is, that moſt of the petty officers, who generally drink more punch, or a beverage of rum, water, and ſugar, and ſometimes live a little better than the common failors, (§ 35. 40.) are birth'd in this low apartment: theſe, however, generally endeavour, in the Weſt-Indies, to obtain airy births for themſelves between decks; ſo that there commonly remains but few of them in their proper ones, in the orlope.

8. If a ſhip makes a quick ſummer paſſage to Jamaica, the ſolar heat neceſſarily produces, in her failors, a conſiderable laxity and debility of the ſolids: yet the Cachexy, from the fore-mentioned cauſes, (§ 4, 5.) will, in this caſe, be inconfiderable; its progreſs being prevented by the timely reſreſhments they obtain, in conſequence of their ſpeedy arrival at their port; whereby their habits are ſoon purified from any ſlight ſcorbutic taint acquired towards the end of the paſſage. This healthful crew will be much leſs liable to an attack of the Scurvy in a ſucceeding long cruize in the Torrid Zone, than if they had arrived under an advanced, general, and fatal Scurvy; which,

## 10 INTRODUCTION.

which, by greatly relaxing the fibres, renders the habit more susceptible of the same disease for a considerable time after. Yet, if this ship is ordered out upon a very long cruize at any time before November following, the Scurvy will probably appear again on board, especially if the Bilious Fever invades them at sea, or not very long before their departure; and will be more or less epidemical and fatal, according to the duration of the cruize, and as the antecedent Fever has been more or less general. After the month of October it will seldom appear any more, so as to be epidemical and malignant, among the same sailors, so long as they shall remain in the West-Indies, especially if their arrival from England has been soon after the vernal Equinox, or before the middle of May: for the Scurvy seldom appears in the West-Indies in the winter months; and Negroes, Creols, and seasoned Europeans are not obnoxious to the malignant Bilious Fever, and are seldom much afflicted with the Scurvy<sup>c</sup>

<sup>c</sup> Most Europeans are seasoned to the Torrid Zone, after living about a year therein. I have demonstrated, in the sixth chapter of the constitution of the West-Indies, (§ 2 ) that this seasoning consists chiefly in an increment of the rigidity of the fibres, or an assimilation of them to those of Negroes.



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in the Torrid Zone, though living at sea on ship provisions : but if this ship was to prosecute a voyage round Cape Horn, the Scurvy might again become general and fatal on board, not only on account of the great length of the voyage and the nature of the ship's provisions, but likewise by reason of the great and sudden contraction of the pores, by the quick transition from an extreme heat to the contrary ; in consequence whereof the acrid perspirable matter is in a great measure retained ; and the condensed, viscid, and acrid humours, will readily form obstructions in the constricted and contracted capillaries. This diminution of perspiration, and its effects, will be greatly increased by the concurrence of a moist atmosphere, wet decks, getting frequently very wet by rains, or the spray of a boisterous sea, or sleeping in wet or moist cloths, as Doctor Lind justly observes ; whence Scorbutic Fevers, and the most malignant Scurvies : consequently the extremes of heat and cold, under particular circumstances, are nearly a-like productive of the Scurvy. If the same ship, after doubling the Cape, returns to the Torrid Zone, the Scurvy may again become  
epidemical,

## 12 INTRODUCTION.

epidemical, after being seven or eight weeks at sea, for the reasons already mentioned (§ 4, 5.); and after this general attack of it ceases, it will probably appear no more, so as to be rife and virulent among the men, while they continue after in the sultry climates, provided no Continued, Remitting, or Intermitting Fever invades them; and even these frequently will not excite the Scurvy in seasoned Europeans, tho' living wholly on the ship's provisions. (§ 9. 33.)

9. From what is said, (§ 8.) it will be easy to account for the epidemic Scurvies which invaded Lord Anson's crews off Cape Horn, and after leaving the coast of Mexico; and the general health they enjoyed after, during a cruize of four months in the Pacific Ocean. Besides, 'tis probable, that in this cruize, these crews were served with rice in lieu of bread, or pease, which is a good preservative against the Scurvy (§ 61, 62, 63.) The Kent and Grafton had the Scurvy rife on board, on the 14th of May 1741, when they arrived at Port-Royal in Jamaica, from England, with a fleet of merchant, store, and victualling ships, after a passage of ten weeks: above 70 scorbutic patients were then sent to the naval hospital,



## INTRODUCTION. 13

hospital, from each of these ships of war. In a fortnight after, the Bilious Fever began among their crews, and soon became very general. Soon after this ceased, at Cumberland-harbour, (§ 30.) about the beginning of August following, the Scurvy made a second appearance, and soon became frequent among them; and likewise among those of the fleet which arrived in October 1740, under Sir Chaloner Ogle. Towards the end of October following, the anniversary north winds began, and the evenings and mornings were unusually cool, and sometimes a little chilling; then the Scurvy ceased, notwithstanding the crews still continued to live wholly on the ships provisions, and Intermitting Fevers began, which in a little time became epidemic: the accessions of the north winds being then more frequent, cooler, and of longer duration; these also ceased in December following, soon after the fleet went to sea. On the 5th of March following, this whole fleet, under the Admirals Vernon and Ogle, sailed from Port Royal for Porto Bello. This voyage was protracted to about four months, by reason of our making the Island of Jamaica, at thirty leagues



## 14 INTRODUCTION.

leagues to leeward of Port Royal; during which time, the crews of the Kent and Grafton, and all those who had been a year or more in the Torrid Zone, remained almost wholly free from the Scurvy, tho' they had no vegetables at Porto Bello, nor any fresh meat, except one meal of fresh pork; and though it rained almost every day, during the sixteen days that we continued at this port, which gave rise to a mild Fever among the old standers, or seasoned men; attended with a moist skin, and terminating sooner or later before the 12th day, frequently by an excretion of ropy saliva, whereof few or none died; while the military, who arrived the preceding December, were dying of the Bilious Fever by dozens, on board the transports.

10. The companies of ships of war that arrive at Jamaica, when the sun is pretty well to the southward of the equator, especially about the beginning of November, are seldom affected in any considerable degree with the Scurvy, the solar heat at Jamaica being then a little less intense, and the evenings and mornings much cooler than in the summer months; the change is therefore inconsiderable, from  
the

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the solar heat of August in England, to the winter heat in Jamaica. In this case, the constitution suffers very little alteration by the difference of the diurnal heat alone; and the companies of ships, in such circumstances, are not only little liable to the Scurvy, but likewise to all the other diseases which result chiefly from the change of climate. Those who arrive in good health, have likewise a better chance of escaping both the Bilious Fever and Scurvy, while they remain in the West-Indies, or of having them favourably (§ 29. 32.); provided they are not under a necessity of lying long near an unwholesome shore, or in a place that is very liable to rains (§ 32.) nor make very long cruizes during the first year after their arrival in the Torrid Zone.

11. The sailors of merchant ships are seldom much afflicted with the Scurvy, even in the end of a long summer passage to Jamaica; I suppose, because they receive their wages at the end of each voyage, and are thereby enabled to purchase fresh provisions and liquors at each port, and commonly carry to sea some of the last article, which contributes not a little, when properly mixed with water, and sweetened, to prevent



prevent a Scorbutic Cachexy (§ 35. to 39.) Their habits, therefore, are generally well purified at each port, or at least at the end of each voyage, by living ashore on fresh provisions, and drinking freely, from any degree of Cacochymy they may have contracted at sea. Thus they always embark on a foreign voyage with a clean sound habit, which is no small advantage: they also work much harder and with more constancy than the sailors of men of war, which is likewise a preservative against the Scurvy; the strength and elasticity of the fibres being thereby increased, and perspiration promoted: whereas the sailors of his Majesty's navy, who generally live, in war-time, on salted and other dense and viscid provisions, for years together, and make long voyages and frequent long cruizes, at short intervals, are scarce ever wholly free from some degree of Scorbutic Cacochymy, or taint. In many harbours and places abroad, they can obtain no supply of fresh meat, or antiscorbutic vegetables; and where they have this advantage, they often remain not long enough to have their habits sufficiently purified, before they are ordered on a cruize, or foreign voyage.



voyage. Their being strictly confined on board, is also a disadvantage in this respect, both by sinking their spirits, and depriving them, in a great measure, of some portion of salutary antiscorbutic effluvia, which exhale from most vegetables: (§ 30.) many of them do therefore generally go to sea, with some degree at least of Scorbutic Cacochymy, which, in the course of a long cruize speedily increases to a most dangerous and loathsome Scurvy. Therefore the common practice of turning over board, newly arrived from a foreign voyage or long cruize, on board of ships that are speedily to be ordered abroad, or on a cruize, except in cases of absolute necessity, is not only inhumane, but highly injurious to the service.

12. Europeans who arrive in the West-Indies, under a Scorbutic Cachexy, have no prickly heat or rash, till the obstructions attending this disease are almost wholly resolved; the morbid and acrimonious matter evacuated, and the stomach and intestines, and other vital organs and viscera, have recovered in a great measure their natural strength: then the circulation becomes free and natural; the various secretions and

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## 18 INTRODUCTION.

excretions are restored to a salutary state; the skin becomes moist and relaxed; the humours are determined abundantly thereto; the prickly heat begins to appear, and increases with the health of the individual.

13. The weather at sea, and remote from land in the West-Indies, being generally fair, very dry and serene; the sultry diurnal heat, moderated by the trade wind, which is commonly fresh, constant, and uniform, very seldom blowing with the violence of a storm; and from a great share of the solar rays being transmitted by, and lost in the water <sup>a</sup>; the night air being agreeably refreshing, and not too cool or chilling, with respect to the solar heat, as within the course of the nocturnal land breeze, or anniversary north wind, and the atmosphere being pure and free from many

<sup>a</sup> I conceive that a much less proportion of rays is reflected from the water than from the earth; (tho' a learned and ingenious late author would seem to be of a contrary opinion, who, in accounting for the sea and land breezes, asserts that the earth, from the roughness of its surface, imbibes the rays of the sun, by which it is more easily heated than the sea, whose polished surface reflects them) because all diaphanous bodies transmit a great share of the solar rays; many of them are indeed reflected in the water at different depths, and also from the bottom; these, however, will be mostly lost by succeeding reflections, or have very little effect after emerging from the surface.

noxious



noxious vapours which vitiate the land air; seasoned (§ 8.) sailors enjoy therein an almost uninterrupted series of good health and spirits. All the ports, except a few of the lower fore ones, are generally open in the days, and the hatch-ways uncovered; a successive change of air is promoted in the inhabited parts of the orlope, by the causes mentioned in the sequel, (§ 14.) and all the births above the hold are dry, sweet, airy, and salutary, except the fore-part of the lower gun-deck. (§ 15.) There were only seven of the Kent's old standers, or seasoned men, sick, and but two of them died, during her second year in the West-Indies. Hence also it is, that the principal officers who live on board on a wholesome diet, have greatly the advantage of the European inhabitants of the West-Indies, in point of health, and suffer much less in their constitutions by a long continuance in the Torrid Zone: ships companies in these circumstances, if seasoned, have also the advantage of those who cruize in the British seas in cold weather, where the pinching cold, and sometimes the badness of the weather, obliges them to keep the ports mostly shut, and the hatches



as close as they can be suffered; whereby the air between decks and in the orlope, is rendered exceeding foul, and noxious: 'tis therefore in cold climates only, that air-changing or correcting tubes are necessary, unless it should be found, that bread and naval stores may be longer preserved in the West-Indies, by frequently changing the air of the rooms, where these are kept. By this contrivance, the inconstancy, storminess, closeness, and humidity of the weather, in northern climates, during a half at least of the year, also tend to produce various diseases among the crews of ships of war; from which the sailors in the Torrid Zone are generally exempted.

14. The air of the orlope of a great ship of war is not so confined and foul as is commonly imagined; at least in the West-Indies, where the hatchways are generally open, or only covered at top partly by the gratings; for in the circumference of the after-hatchway, where the orlope is most peopled, the air is considerably rarified, partly by the native heat of individuals who are there birth'd, but chiefly by the flames of a great number of candles, which they burn in this dark apartment; which occasions a constant

stant draught of air into the after-part of the orlope, while the rarified air ascends by the main and fore-hatchways. This constant stream of air is so much increased by means of a wind-sail, that in the ships where this was used, at their arrival in the West-Indies during the last war, it was found to be so inconvenient for those who were birth'd near the after-hatchway, that it was always soon laid aside; and the rather as no disadvantage was ever perceived to arise from the want of it. The effluvia of the bilge water consist, in a great measure, of the acid spirit of sea salt; the change which this water undergoes by stagnating in the ship's well, disposing it more readily to set at liberty some portion of this spirit, as appears by its tarnishing silver with the same dark leaden colour as is imparted thereto by the steams of the chemical spirit of sea salt: these effluvia then, that have generally been deemed pernicious, most probably contribute, in some measure, to correct the orlope air, and to render it so innoxious as it is observed to be; it may possibly form, with the perspired animal matter, which partakes of a urinous nature, a neutral salutary spirit in the air;



and the aerial fermentation thence resulting may be one cause of the great heat of the air of this subaqueous<sup>e</sup> apartment in the West-Indies. But this acid steam being much collected in the well, and unallayed by any mixture of perspired matter, must necessarily be highly pernicious, and liable, when combined with the intense fetid vapour of the putrid water in the well, or with a particular subtile gas, that perhaps is generated by the putrid fermentation of this bilge water, to occasion immediate suffocation to persons who descend into the well, when the water has stagnated long therein: for the bilge water undergoes a particular kind of putrid fermentation in the well, occasioned chiefly by a mixture of fresh water, or small beer with it, which leaks from the casks in the hold, whereby it often acquires an extremely fetid smell. Disagreeable smells, however, of this sort, never do any sensible prejudice to indivi-

<sup>e</sup> The heat of the air of the orlope in the West-Indies, in the warmest months, probably amounts to about 90 degrees, by Farenheit's thermometer. One may form some judgment of it by the candles, which are there so soft, that there cannot above three or four inches of them be made to stand upright in a candle-stick; therefore they commonly stick them against the sockets, or adjacent parts of the ship: and by the butter, which is liquid, and of the consistence of new honey.



## INTRODUCTION. 23

duals who are accustomed to them; unless they be intolerable by the density of the fetid vapour, as happens sometimes in the ship's well.

15. The most unwholsome inhabited place of a great ship of war at sea, is the bay, or fore-part of the lower gun deck, where the ports are almost always kept shut under sail; and the deck is there commonly wet or moist, from some water that leaks in at the ports and hause holes: hence it is, that the marines, who are there birthed, are generally most obnoxious to dangerous Continued and Remitting Fevers, and consequent Scurvies; their being more slothful than sailors, is also a concurring cause of the great disposition they have to these diseases.

## C H A P. I.

*Of the Progress, and different Species of the*  
S C U R V Y.

16. **T**H E Scorbutic Cachexy, generated by the causes specified in the foregoing, (§ 4, 5.) discovers its presence and increment, by the following symptoms. 1. The complexion is faded, and the teguments on the inferior and interior portion of the tibia, immediately above the malleolus internus, pit a little in the evenings. 2. As this symptom increases, the perspiration and propensity to sweating diminish; the sweat becomes viscid and scanty, and difficult to be forced. 3. A considerable heaviness and lassitude of the whole habit, and consequent laziness, invade and grow with the disease; sometimes with deep-seated pains in the extremities. 4. The ankles being now sensibly swelled in the evenings, and pitting much, small elevated pustules, about the bigness of a small pin-head, and commonly of a dark red, begin to appear at the roots, or bulbs of the cutaneous hairs of the legs, unattended

tended with pain or itching. At this time, the legs for the most part begin to grow of a pale tawny hue, sometimes inclining to yellowish, or a lemon colour. 5. The gums now begin to itch, swell, and grow of an obscure red, and painful; soon after, they often bleed spontaneously, or with little friction, and at length ulcerate, and the breath grows strong. 6. Now the knees are weak, and the legs commonly a little tumified with a soft, indolent, and unelastic, or a hard and sensible swelling, and marked with large spots or stains, of a redish purple, livid, tawny, or yellowish colour, or of a mixture of two or more of these colours. The like stains also frequently appear on the thighs, and sometimes on the arms, when the disease is more advanced; but seldom on the face or trunk of the body, except when death is at hand; and such as appear at, or near the article of death, are always livid or purple. 7. The patient at this period, or end of the first stage of the disease, finds some difficulty of breathing, or a straitness or oppression of the breast after brisk motion, or going up a ladder on ship-board.



17. As the disease advances in its second stage, these symptoms (§ 16.) increase: the face is now commonly of a dun or darkish hue; the ulcerated gums separate from the teeth, which become loose and carious, and the breath is intolerably fetid: the patient is exceeding feeble and listless; a profusion of blood sometimes issues from the nose; the small pustules on the legs grow livid, or of a darker colour; the same sort of elevated specks also appear on the thighs; tubercles sometimes arise in the hams; and small, hard, and painful, or soft, elastic, and indolent tumours, resembling scrophulous ones, on the thighs and arms, which are commonly marked with livid stains. The flexor muscles of the legs are sometimes also contracted; sometimes, but seldom, one, or both knees, become a little swelled, hard, and rigid; and the inside of the mouth frequently ulcerates: the skin is now generally dry; the urine high-coloured or turbid, and scanty; and the pulse, especially in the last stage, is commonly soft and weak, and sometimes unequal.

18. The disease being now arrived at its third and last stage, some other symptoms and symptomatic diseases frequently arise, which,

which, with the former ones, (§ 16, 17.) swiftly increase, and soon and infallibly end in death, if the patient has not the benefit of a proper regimen; ripe fruits, or green vegetables. The Scurvy often assumes different forms, at least with regard to some prevalent symptoms in different persons, and under particular circumstances, which may be reduced to the five following species; which distinctions of it will be conducive towards discovering the nature of each case, and the most appropriated methods of cure.

19. The particular appearance of the Scurvy, wherein an Anasarca is the most prevalent symptom, and general in the whole habit, I shall term the first species: in this, the face is pale and bloated; the legs and feet are considerably swelled with an indolent and very unelastic tumour, which, on the interior and inferior portion of the tibia, will sometimes retain the impression of the point of a finger for several hours. In the last stage of it, there is generally a great propensity to a dangerous colliquative Diarrhœa; the spots on the legs are commonly yellowish, or of a tawney or livid hue, seldom red or purple,  
and



and sometimes no stains appear. This species, which occurs not often, is attended with a great laxity of the solids, and a small degree of acrimony of the juices, and is remarkably obstinate.

20. In the second species, the *Anafarca* is almost wholly confined to the legs and feet, and is less indolent than in the first: (§ 19.) the face is commonly of a darkish pale hue; the legs and thighs are stained with red, purple, or livid spots, and sometimes the arms: tubercles frequently arise in the hams, and sometimes small, round, and hard, or soft elastic tumours in the thighs and arms: the small pustules at the roots of the hairs are most conspicuous in this species, and the third; and in their first and second stages, the patients have generally a tolerable appetite, and a great desire for salted meat. There is a less degree of laxity of the solids, and a greater acrimony and viscidiness of the juices in this species than in the first; and it is commonly soon cured by a proper regimen.

21. The third species is attended with a still less degree of laxity of the solids than the second: the legs are swelled with a hard and sensible tumour, chiefly in the calves,  
and



and sometimes they are much indurated, with scarce any obvious swelling; the muscles of the thighs are often rigid and painful, and the benders of the legs sometimes contracted; and sometimes one, or both knees become rigid, and affected with a hard discoloured swelling; the teguments, however, on the interior and inferior portion of the tibia, commonly pit a little. This species is also attended with discolourings on the skin, as the second, and with tumours, tubercles, bone-achs, hemorrhages, sometimes with nodes, and exostoses; and other symptoms that are common to all, or most of the other sorts of Scurvy. A considerable degree of acrimony and viscosity of the juices, and a morbid rigidity of the fibres of particular parts, and laxity of others, prevail therein; and the disease is worse and more obstinate than the second species, but generally better than the first.

22. The fourth species is distinguished by a dry, emaciated habit, extenuated legs, and excruciating bone-achs, which are frequently most prevalent and violent in the middle and anterior portions of the tibiæ. I have seen a few cases only of this species,  
which

occur in the West-Indian Scurvies. The lungs of scorbutic patients are seldom much affected in the Torrid Zone: a cough scarce ever invades them, nor any considerable dyspnœa: even towards the end of the last stage, the patient commonly breathes easily in a lying attitude; but if raised up, he becomes giddy, faint, and breathless, which is directly contrary to a true Asthma, wherein the patient always breathes with most difficulty in a lying or horizontal situation. Considerable contractions of the benders of the legs happen seldom, and an indurated swelling and great rigidity of the knee, is an extraordinary symptom. I never saw, in the West-Indies, one case of luxuriant spongy flesh rising from the gums, nor above four cases of the liver-like fungus on ulcers of the legs: ulcers of the legs are generally more obstinate; and the first, or leucophlegmatic species of the Scurvy, happens oftener in hot than in cold climates.

26. A Flux coming on in the last stage of the Scurvy is generally fatal; the patient languishes under it, till being emaciated almost to a skeleton, and his strength quite spent, he expires: but such as die of the Scurvy,



Scurvy, without the supervention of a diarrhœa, are seldom much emaciated at death. In this case, persons under the first species die of a Dropsy and Anasarca; gangrenous watery bladders sometimes appearing on the legs before the article of death. In the second and third species, the obstructions commonly increase, and the propelling force of the heart and arteries diminish, till the circulation and life necessarily together cease: and in the fifth species, when no flux accedes, life is destroyed by an acrimony, tenuity, and dyscrasy of the juices, chiefly from the fore-mentioned immediate causes: (§ 23.) In all these four sorts, (§ 19, 20, 21. 23.) if the patient is made to sit upright in bed, towards the end of the last stage, he presently becomes giddy and faint, and falls down again; and if kept by an assistant in this erect attitude, a syncope is induced, which soon ends in death; apparently, because the resistance which is opposed to the left ventricle of the heart is then increased; and the circulation in such an erect posture, first fails at the brain: but if the patient, being young, and having naturally a good constitution, is carried a-shore in a lying posture, and

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has the benefit of a proper regimen, he recovers a-pace, especially if the disease is of the second or third sort.

27. A gentle diarrhœa coming on in the first stage of the Scurvy, from fresh animal and vegetable food, and sweet river water, is generally salutary; yet sometimes it degenerates into a tenesmus or dysentery. An ulcer in the leg, with a moderate purulent discharge, contributes to prevent the Scurvy, and retard its progress: but if the discharge is checked by the growing up of spongy flesh; the Scurvy, if then rise on board, begins and increases a-pace. Ulcers in the legs increase in advancing towards the Torrid Zone; and diminish in receding from it, if a manifest Scurvy doth not accede.

28. Among new-comers in the West-Indies, who live at sea wholly on the ship's provisions, adults of a hale robust constitution, alert, of good spirits, and under the age of forty, and chiefly such of these as have been formerly seasoned to the heat of a vertical sun, and boys, are the least obnoxious to the Scurvy: and those who are seasoned to the Torrid Zone, by living about a year or more therein, are seldom much affected with this disease, so long as they

they remain after in the hot climates, as observed in the foregoing (§ 8.)

29. Persons under a manifest Scurvy are not invaded with the Bilious Fever: yet this malignant Fever often attacks them, after being highly pre-disposed to the Scorbutic Cachexy; and likewise when almost recovered from this disease, before the matter that was obstructed, after being resolved and moved, is wholly evacuated. And the solids are still weak, and the Bilious Fever in both cases is very fatal: for both these states of the personal habit, dispose it, under particular circumstances, (§ 32. 34.) to the most fatal appearances of the Bilious Fever, and to malignant Intermittents, and obstinate and dangerous Cachexies, from the most favourable of these Intermittents, and to Fluxes. A very small degree of Cacochymy, and debility of the habit, from a former Scurvy imperfectly cured, also highly disposes to a relapse of the same disease. Therefore, nothing is more wanted, or can be productive of greater advantages, with regard to the navy, especially in the West-Indies, than a certain and easily practicable method for pre-



venting the Scurvy on ship-board ; and such we hope is exhibited in the sequel.

30. The companies of the ships of war which lay in Cumberland harbour, in the island of Cuba, from about the beginning of July 1741, to the 5th of December following, had the Scurvy milder and less epidemical than those of ships that were ordered out to cruize, after they had lain some time in this harbour, notwithstanding they all lived wholly on the gross sea-diet, and that the sea air is commonly drier (§ 4. 13.) than the air which comes from the woody West-Indian lands ; probably because the water which is drank at sea is generally verminous and less sweet than what is drank in a harbour ; and perhaps the effluvia which exhale from various plants, and were transported to the ships in this harbour both by sea and land breezes, (for the sea-wind commonly blew over some portion of the land in its way to the ships) have, on being absorbed by the bibulary pores, contributed not a little to prevent and retard the progress of the Scurvy ; especially as these effluvia consist chiefly of the essential spirits of the plants, which are abundantly exhaled by the heat of a  
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vertical fun: therefore 'tis also probable, that the Scurvy will be more easily cured a-shore than on board, by the same regimen and medicines; sailors having more liberty, and being more chearful a-shore than on board, may also contribute to accelerate their recovery upon land. Those who are birth'd in the fore-part of the lower gun-deck, may indeed be more liable to the Scurvy at sea, than in a harbour, for the reasons already mentioned, (§ 15.) It was also remarkable, at Cumberland harbour, that the companies of transport ships that lay in the lagunes, close to the land, where the men had an opportunity of going frequently a-shore, were scarce at all affected with the Scurvy; which seems to add to the probability of the above hypothesis.

## C H A P. II.

*Of the external and internal causes of the SCURVY; with some principles towards a new theory of the resolution of obstructions, and crises of Fevers.*

31. **T**H E external causes of the Scurvy being already exhibited, (§ 4, 5.) I shall only observe here, that the principal and general remote, or predisposing cause to this disease, in the West-Indies, is the intense diurnal heat, when the sun is in, or not very remote from the Zenith, joined with an unseasoned constitution to the Torrid Zone; which, together with the salted and tenacious navy victuals, do constitute the proximate cause of the disease, which is sufficient to produce the Scurvy in persons of all ages, temperaments, and personal habits: this diet being properly the exciting cause, since, as Dr. Lind justly observes, it determines the effects of the predisposing causes to the production of the Scurvy. This necessary exciting cause of the Scorbutic Cachexy, on board his Majesty's ships of war, consists in the following

lowing articles, viz. salted beef and pork; which, in the West-Indies are sometimes highly tainted; exceeding lean and hard Suffolk cheese, which is served during the greatest part of the passage to Jamaica, or as long as it will keep; butter or oil is served after in lieu of it; boiled pease; oatmeal boiled in water, to the consistence of hasty-pudding, called burgow, or watergruel instead of it; flour, which is often weevily in the Torrid Zone, with salted suet, or currants, or raisins in place of suet, which are made into a pudding with water; sometimes salted and dried fish, or stock-fish; very hard and solid biscuit, which in the West-Indies is frequently damaged with maggots and weevils; an allowance of a quarter of a pint of rum or brandy, mixed with three-fourths of water: the water at sea is commonly more or less putrid and verminous, and the sailors drink of it to excess after salt beef dinners.

32. But when the effects of the proximate cause (§ 31.) of the Scurvy are great and sudden, (§ 4.) or aggravated at sea by rains, wet decks, or some abuse in the non-naturals, a Continued Fever is thereby produced, which commonly ends in the most



malignant species of the Scurvy, (§ 24.) provided the morbid individual continues at sea, or lives on the ship's provisions after the crisis of this Fever: but if these last mentioned auxiliary exciting causes, do not accede till after the ship's arrival at West-Indian land; or if the ship anchors off marshy and ague-producing land, at any time between February and November, and pretty near the shore, the disease arising from the concurrence of those causes, (§ 29. 32.) will be a true and malignant (that is, a very obstinate and fatal) Bilious Fever: yet the proximate cause of the Scurvy, joined with the anniversary north winds of the winter months, will, for most part, only produce an Intermitting Fever, which will be more or less obstinate and dangerous, and productive of Cachexies and symptomatic Bilious Fevers, (supposing the ship brings to on the south-side of an island, and near the shore) according as the ground over which this wind blows in its way to the ship, is more or less marshy, woody, and liable to rains, and more or less productive of Intermittents; the antecedent diathesis to the Scurvy in this case, contributes to increase the obstinacy and fatality of  
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of the Intermittents, and particularly disposes the habit to consequent Cachexies, (§ 34.) and symptomatic Bilious Fevers, and Fluxes.

33. It is observed by Dr. Lind, that the principal predisposing cause to the Scurvy, in climates where the winters are cold, is a cold and moist air; and we have shewn, that the chief predisposing cause in the West-Indies, consists in an unseasoned constitution to the Torrid Zone, joined with the sultry heat of a high sun; (§ 31.) and that when the fibres become drier and more rigid and elastic, by living a year or more in the hot climates; (§ 8.) and the juices have undergone some change, whereby they also become nearly assimilated to those of Creoles and Negroes; the individual is seasoned to the Torrid Zone, and is no longer obnoxious to the most malignant appearance of the Bilious Fever, or very dangerous Scurvies. Persons thus seasoned have therefore, Continued, Remitting, and Intermitting Fevers generally more favourable than new-comers; and are less liable to Cachexies from Intermittents, or Scurvies, from antecedent Fevers at sea (§ 8, 9.)



34. A moist air is seldom or never a predisposing cause to the Scurvy in the Torrid Zone, within the reach of the land wind, at least not to unseasoned new-comers; because this, joined with a most scorching sun, unsalutary land air, an unseasoned constitution to the Torrid Zone, and the gross sea diet, is too powerful a cause to produce only a slow chronic disease. The effects of these combined causes are acute and dangerous diseases, as observed in the foregoing, (§ 32.) In August and September 1741, the Scurvy was epidemical on board the ships of war, then lying in Cumberland-harbour, which arrived in the West-Indies in October 1740, and May following, though the weather, where the ships lay, was exceeding dry and serene: at the same time the Military, under the command of General Wentworth, (who likewise arrived in October 1740, and were then encamped on a low plain, about seven miles from the great harbour, where it rained almost every day during the autumnal months, being environed with thick woods, and in the neighbourhood of marshes, lagunes, and woody mountains) were suffering exceedingly by Continued,  
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miting and Intermitting Fevers; which in the space of four months destroyed above half their number, and left the greatest part of the remaining highly cachectic; insomuch, that of 2500 who were landed, there remained only 300 effective men when the camp broke up, about the first of December following; and tho' they lived wholly on the King's provisions, the Scurvy never appeared among them: yet this gross diet, as we have already observed, (§ 32.) greatly contributed to the fatality of these acute diseases, and to the production of the succeeding Cachexies. For these Fevers were not rife nor very fatal, and were seldom productive of Cachexies, among the military officers, who lived better, and drank more wine and punch than the private soldiers. The Scurvy may possibly be in some measure infectious to those who are highly predisposed thereto, and lye contiguous in a confined air, to persons much advanced in the disease: and this may be one reason why the mariners who are birth'd in the bay, where the air is much confined at sea, (§ 15.) are more liable to this disease than the sailors who lye more airy.

35. Dr. Lind reckons the want of fresh vegetables and greens, a very powerful cause of the Scurvy: (page 115 of his treatise) he might, with equal reason, have added fresh animal food, wine, punch, spruce beer, or whatever else is capable of preventing this disease. The commissioned sea-officers are preserved from the Scurvy in the Torrid Zone, by fresh meat and rum punch; and the petty officers chiefly by a beverage of rum and water, commonly well sweetened with brown powder-sugar; for these last generally live at sea wholly on the ship's provisions. The petty officers have besides, indeed, a better chance of escaping the Scurvy than common sailors; because they generally go to sea with a pure and sound state of body, having commonly a little money, which they expend in the intervals of voyages or cruizes, chiefly in purchasing greens, roots, fruits, rum, and sugar; (§ 11.) and as they have more credit with the purser than the private men, he frequently supplies them at sea with powder-sugar and a proportion of rum, much above their allowance. Most of the scorbutic patients belonging to the Kent, who were put on shore at Cumberland-harbour



harbour in August 1741, recovered as soon as any I ever saw, even without greens, roots, or fruits. (§ 61, 62, 63.)

36. I own I cannot believe, with this ingenious author, (§ 35.) that brandy or other distilled spirituous liquor, is productive of the Scurvy, or has any pernicious influence on this disease, (page 123 of his treatise) provided it be properly diluted. The doctor seems to have acquired a prejudice against spirituous liquors, chiefly, because he observed that the Scurvy increased in frequency and virulence, upon the ship's beer being exhausted, and having brandy served in its place. The Scurvy appeared in the fleet at Cumberland in 1741, about the time that rich Malaga wine began to be served in lieu of diluted spirits, and soon after became frequent and virulent: yet I do not suppose, that this appearance of the Scorbutic Cachexy, was partly an effect of the Malaga wine, or that the disease has been thereby aggravated, but rather the contrary; for it was then, without doubt, produced by a long course of the salted and gross sea diet, without any supply of fresh meat or vegetables, in concurrence with the sultry heats, and a predispo-

predisposition thereto, from a lax and unseasoned state of body. The small beer of a ship of war is seldom exhausted till after a long continuance at sea, when the ship-provisions will naturally create the Scurvy, especially if aided by one of the fore-mentioned principal predisposing causes; (§ 33.) and after the disease begins, it always swiftly increases both in frequency and virulence, while the ship remains at sea, or is unsupplied with fresh meat or greens, or other antiscorbutic diet, whether the crew is served with small beer, wine, or spirituous liquors.

37. If the brandy, mentioned by Dr. Lind, was served to the ship's company without any allay of water, I will readily allow it might have, in some measure, contributed to excite and aggravate the Scurvy: for the sailors frequently drink off their allowance of pure brandy at one draught, which must needs exert its powers of coagulating the juices, and crisping the vessels in a small degree on the villous and nervous coats of the stomach; whence a lesion of the digestive faculty, and consequent tendency to a Cachexy, whose genus will be determined by the diet, the weather, the individual's



vidual's situation, and manner of life, which therefore in common seamen will generally be of the scorbutic kind.

38. But, if the brandy or rum is mixed with three-fourths of water, according to the salutary method first introduced by Admiral Vernon, it will then be gently cordial, corroborative, antiseptic, and diuretic, resisting the relaxing and septic powers of moisture and excessive heat: if sugar is added to this beverage, it will be thereby rendered still more salutary; for this native balsamic sap blunts the acrimony of the spirit, and occasions it to mix more intimately with the water, and with the circulating juices; the acrid particles of the animal oil that are nearly rancid, are thereby more effectually carried out of the body; and this drink it renders more aperient, deterfive, and less heating, and highly antiscorbutic; (§ 35.) for sugar, notwithstanding the groundless prejudice which many entertain against it, is aperient, deterfive, demulcent, antiseptic, and consequently an excellent medicine against the Scurvy. (See Phil. Trans. N°. 337. p. 273.) This beverage may be yet greatly improved by the addition of fresh lime, or lemon juice;

juice; that is, if it is made punch of, by reason of the refreshing, attenuating, aperient, diaphoretic, and antiseptic qualities of this fragrant vegetable acid juice. I am therefore of opinion; that punch that is rather weak, pretty sour, and sweet, is one of the best antiscorbutics hitherto known: negus, composed of wine and water, with lemon juice and sugar, possesseth nearly the same virtues; and as it is less heating and more demulcent, it will be more proper in some cases than punch.

39. Dr. Lind seems to think, that the antiscorbutic virtue of many green vegetables depends, in a great measure on their fermentative tendency; since, by means thereof, they are longer preserved from putrefaction within the body; and, in the same paragraph, says, — “ We evidently  
 “ see in this disease (the Scurvy) the good  
 “ effects of spruce beer, cyder, ale, wine,  
 “ and other vinous liquors, prone to fall  
 “ into this state (of fermentation) in the  
 “ stomach; on the contrary, the pernicious  
 “ effects of distilled spirits, which check  
 “ such a fermentation.” (p. 307, 308.)  
 Now, I cannot suppose with the doctor,  
 that an acid fermentation in the stomach



is checked by distilled spirits; since I have known many instances of a heart-burn, excited by taking a dram of a spirituous liquor, which was attended, and apparently occasioned by an exceeding acid phlegm, which was brought up by mouth-fulls from the stomach. Neither can I believe that such an acid fermentation in the stomach is necessary, or even conducive towards curing the Scurvy; since cabbage, coleworts, spinage, and some other green vegetables, that are neither susceptible of an acid nor vinous fermentation, are excellent antiscorbutics; and because the disease is not cured, but rather promoted by hard biscuit, and dense heavy flower pudding; though these readily fall into an acid fermentation, especially in a degree of heat equal to that of the human body; but if the fermentation meant by the doctor, is a vinous one; I can aver from my own experience, that it is no wise checked by distilled spirits. Besides, I am of opinion, that a true vinous fermentation is never, or but rarely produced within the human body, since the vast quantity of air, which it always generates, must greatly endanger the life of the individual: if yeast is mix-

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ed with a beverage of molasses and water, that is rather more than blood warm, the fermenting quality of the yeast is thereby greatly marred; and if this must was kept in a degree of heat equal to the native, 'tis probable it would never discover any sign of fermentation.

40. One disadvantage still attends the beverage of rum and water, with regard to the common mariners at sea: one man's allowance of this mingled drink being only a pint-a day, is not sufficient to satiate his thirst after salt meat dinners, especially after a meal of salt beef, when the men have always the greatest drought. I have often seen one, after a salt beef dinner, drink four or five cupfulls of water successively, each cupful being about half a pint. The relaxing and septic quality of such an excess of putrid and verminous water, is no inconsiderable pre-disposing cause to the Scurvy, which will create a diathesis chiefly to the leucophlegmatic species: (§ 19.) but the petty officers have all their drink most commonly mingled with spirituous liquors, and sweetened; and their pieces of meat frequently much better freshened, than what is boiled for the common use of  
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the crew ; whereby they become exempted from two causes of the Scurvy (N<sup>o</sup>. 4. of § 65.) whereof the one necessarily increases the other, with regard to persons who are under a necessity of drinking much putrid simple water.

41. The great and frequent thirst, to which seamen are so very obnoxious, from the nature of their diet, will be still aggravated by serving out pure brandy or rum, exclusive of the ills arising from the ingestion of either of these spirits undiluted. (§ 37.) These causes (§ 40, 41.) then, and their immediate effects, are very likely to contribute towards exciting and aggravating the Scurvy: but when the ship's water is sweet, the drinking a great deal of it will be less prejudicial, than the drinking of so much small beer, especially as its relaxing quality is in some measure corrected by the daily allowance of diluted rum: (§ 38. 45.) and 'tis certain, that seasoned British sailors are as healthful at sea, in the West-Indies, when served <sup>with</sup> rum, mixed with water, as in any part of the world; (§ 13.) the Scurvy rarely appearing among them, nor scarce any other disease, unless the seeds of it, or diathesis thereto, have been

acquired ashore, or within the influence of the land breeze : this, however, greatly depends on other causes.

42. I am inclined to believe, that malt liquor has no antiscorbutic quality, but rather the contrary ; from the many bad effects of it in morbid habits, which I have observed in Cleveland, since I resumed, about two years since, the practice of physic and surgery ; unless it operates as a laxative or diuretic. The ale of this country, indeed, is generally pretty high coloured, of a dense body, and drank too new ; it has not a laxative effect ; it is always detrimental to persons who are puny or diseased, especially if of a lax and gross habit, or using little exercise, by clogging and obstructing the secretory and excretory vessels, by means of a tenacious viscid matter, wherewith it greatly abounds ; for I find that a pint of Cleveland, or Yorkshire ale, yields near three ounces of a viscid, ropy extract ; which indeed has something of a saccharine taste and appearance, tho' of a very different nature from sugar.

43. Ale, I have observed, is generally detrimental to persons who are liable to a nephritis, or spurious ischuria, from viscid  
flime



slime or gravel, or both; likewise to those labouring under the Gout or Rheumatism. I shall mention one remarkable instance of its morbid quality, with regard to the last of these disorders: one John Stonehouse, shoemaker at Skelton in Cleveland, had, some years ago, a very long and severe attack of the Rheumatism, which continued, with little intermission, above five years, and has ever since been very liable thereto, from cold, or drinking ale; he has more than once experienced that one pint of ale will excite this tormenting evil; that the pains begin in a few hours after drinking this liquor, and soon become general, and most excruciating; and continue several days, unless plentiful bleeding, with attenuants and diaphoretics, are timely administered: he now wholly abstains from malt-liquor, but drinks pure brandy, and gin sometimes to excess, without being much affected thereby. I have also observed bad effects from ale, in dropical and leucophlegmatic habits; Hysteric, Hypochondriac, and Asthmatic disorders; Cachexies induced by Intermittents; Bili-ous, and Hysteric Colics, and every disorder of the stomach and intestines that

has lately come under my observation in this country; likewise in wounds, and scorbutic ulcers: in short, 'tis prejudicial in every disease attended with obstructions, or ulcers, from whatever causes; and consequently in the Scurvy; unless it prove considerably laxative: for I know one person who has received benefit, under a Rheumatism, by drinking a large quantity of new ale, which operated briskly by stool; and some others of puny habits, who live mostly on ale, which keeps them always very open in the body. The pains which ale so suddenly excited in the case of Stonehouse, may perhaps be partly occasioned by minute air-bubbles, which it may generate after being mixed with the blood, in relaxed sanguiferous, ferous, and lymphatic vessels; but when the absorbed liquor is strongly compressed by rigid and elastic vessels, this effect may be prevented.

44. Strong ale of a dense body, is salutary enough to hale stout men, who use much exercise, or work hard; its gross viscosity being in these subdued by the powers of the body, and converted into wholesome nourishment; but those, in whom it operates not as a laxative, or diuretic,



retic, and who continue long in the use of drinking much of it, especially if accustomed to little bodily exercise, have their healths at length greatly impaired thereby. The oldest people that I know in Cleveland, drink very little ale; the men in general drink much of it: they are most commonly outlived by the women, unless these die in child-bed, and are very liable to Rheumatism: scrophulous disorders are also rife in the country <sup>f</sup>.

45. From what is said (§ 42 to 44.) we may reasonably suppose, that small-beer made from malt partakes, in some measure, of the unsalutary qualities of strong ale; but being of a thinner body, with little of the abovementioned viscidty, (§ 42.) it is easily subdued by the assimilating powers: its unwholsom tendency will therefore be perceptible only in persons of very delicate stomachs, and lax fibres, or that are highly predisposed to, or actually labour under, one of the forementioned diseases

<sup>f</sup> Dr. Quincy affirms, (Dispens. p. 217.) that those who drink much ale are generally sleek and fat in the bloom of their age: but if they are not suddenly cut off by fevers, as they generally are, they fall very early into a distempered old age; and hardly support the burden of life without a retinue of diseases.

(§ 43.) in most of which I have observed bad effects from it, in the course of my late practice: good small-beer is a wholsom drink for healthful sailors, but unsalutary for those who are under a beginning or advanced Scurvy; in this case, § pure sweet water will be wholsomer, and considerably more so, if corrected, and improved by a mixture of spirituous liquors (§ 38).

46. London, or Edinburgh porter, being made partly from molosses, which possesses the forementioned qualities ascribed to sugar, (§ 38.) if old, fresh, and transparent, is a good diuretic, and much more salutary than ale; I have known some persons, afflicted with the Gravel, much relieved by a moderate use of it: for laborious people it is an excellent drink; but as it is of a dense body, a long and free use of it generally at length impairs the healths of those who use little exercise; or that have puny, or very gross and lax habits.

47. Small molosses beer is much drank in the houses of farmers and mechanics, in Cleveland; and is laxative, diuretic,

§ The learned Hoffman asserts, that simple, pure, and light water of any sort, will often remove the Scurvy.



and demulcent, when well brewed ; generally agreeing with morbid individuals, to whom malt-beer is hurtful. Molasses beer properly medicated is one of the best drinks in most chronic diseases, especially if attended with costiveness ; if medicated with tar, or by boiling fir tops, or black spruce, or wormwood, in the water it is made of, it would make an excellent drink for the sailors of his Majesty's navy, in northern climates ; being a good preservative against the Scurvy, and a salutary medicine for persons under the disease : the expence of it will be rather less than that of small malt-beer, since six pounds of molasses, which is commonly sold in the shops at a shilling, will make nine gallons of stronger beer than is usually made for the navy ; and if purchased at the first hand must come much cheaper. Dr. Lind recommends the making of spruce-beer occasionally on ship-board, and to make use of fir-tops, or tar-water in defect of spruce ; but it would doubtless be much better to have the navy wholly supplied with it in lieu of malt-beer : it may likewise be brewed with hops, as the common  
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ship beer, or with wormwood; for I am inclined to believe that spruce-beer derives its antiscorbutic quality, in a great measure, from the molasses: but if on trial, the molasses-beer shall be found to possess a much less degree of antiscorbutic virtue, when impregnated with fir-tops, tar, wormwood, or hops, than with spruce; the brewers may be easily furnished at a small expence, with enough of the extract of black spruce, to supply the navy with spruce-beer: but as this beer, unless brewed strong, becomes vapid and sour, much sooner than malt-beer, a less quantity of it must be carried to sea; and when it is exhausted, brandy, or rather good gin, diluted, may be served in lieu of it. We proceed now to the internal and immediate causes of the Scurvy.

48. The laxity, and consequent debility of the solids, from their expansion by the intense solar heat, necessarily increase themselves, and effects, by a consequent weakening of the digestive, and assimilating powers: the animal oil that is liquified by the solar heat, and reassumed (§ 4.); and the unassimilated oils of ingested aliments, and

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consequent obstructions, increase these effects: these vital powers, thus weakened, become unequal to the density, and tenacity of the gross navy-victuals; the animal juices which they prepare from this aliment are therefore crude, viscid, light, and unequally mixed: the bile, and other chylopoietic juices become too oily, and much depraved; the ingested rancid oil of meat that is tainted retains its nature, and contributes with reassumed and acrid animal oil, to increase the unequal and preternatural mixture, and depravity of the circulating juices; whence a multitude of dangerous ills (Boerh. instit. med. Par. 765.) And from all these causes (§ 48.), a languid circulation; obstructions of the fine vessels; vitiated, and impaired secretions; diminution of perspiration; acrimony, and dyscrasy of the juices; great debility of the solids; hard, or soft tumours; œdematous swelling of the legs; general anasarca; ascites; putrefaction of the obstructed gross juices (§ 57.), and containing vessels; ruptures of these vessels, and consequent hæmorrhages; and foul, and gangrenous ulcers; likewise transcolation of the stagnating

nating juices, and from this <sup>h</sup>, stains of different colours; or from the preceding cause, or both, and from one or more of these secondary effects, are derived all the other symptoms that attend the Survy. In the third stage (18. 51.) of the disease, the lentor of the blood is frequently destroyed, and succeeded by a morbid and fatal tenuity, resulting partly from a vicinity of this vital juice to a putrid state, especially in the fifth species (§ 23. 59.); whence an increment of the velocity of the blood, and sometimes irregular putrid fevers; and at length death itself, the ultimate effect of these causes; which may likewise be occasioned by an increment of the lentor and obstructions, and diminution of the vital powers, and quantity of circulating juices, till the circulation and respiration necessarily together cease; or by a coagulation of the blood in the left ventricle and auricle of the heart, and great veins, (6. of § 59.) from a very languid circulation; or by the propelling force of the heart being

<sup>h</sup> Mr. Cooper, the famous anatomist, has observed that the blood, after stagnation, will sometimes pass the sides of the containing vessels, by transcolation (Phil. trans. n. 280. p. 1177).

suddenly



suddenly overpowered by an erect attitude (§ 26.)

49. We have already shewn that the proximate cause of the Scurvy, in the Torrid Zone, is a predisposing cause to malignant intermittents, and to the cachexy they commonly induce (§ 32.), which seldom appears in those who live well (§ 34.): this cachexy also resembles the Scurvy in some particulars; the patients under it, having commonly a pale, darkish, or swarthy hue, often inclining to yellow; frequently with œdematous swelling of the legs; general anasarca, and dropsy; and sometimes flying deep-seated pains, with, or without a rigid emaciated habit; and the spleen frequently, and sometimes the liver, are affected more or less in both these diseases: yet they are of very different natures; for the cachexy from an intermittent is not attended with so great a sense of lassitude, heaviness, and debility, as the Scurvy; nor with minute specks, or pustules on the legs, and thighs, ulcerated gums, hard swellings of the legs, and knees; great rigidity and weakness of these joints; contractions of the flexor muscles of the legs, and tubercles; in the hams; nodi, exostoses, vibices; hæmor-

hæmorrhages ulcers with luxuriant spongy flesh: the œdematous tumour of the legs is seldom or never so unelastic and indolent as it is, sometimes in the Scurvy; nor are the patients under it so prone to dangerous faintings in the last stage of the disease.

50. The Scorbutic Cachexy is, for the most part, soon cured by vegetable food, and ripe fruits: the other cachexy requires a much longer time for compleating the cure, and is exceeding obstinate; nor is its cure to be effected by fruits and other vegetables only, tho' proper enough therein; but chiefly by laxative, aperient, inciding and attenuating gums; fixed and volatil, alkaline and neutral salts; sope; roots of squills; aromatic bitters; gentle corroborants; strongly chafing the epigastrium and hypochondria with flannel; and riding; which are not of much service against the Scurvy, at least, in comparison with a proper vegetable diet, and ripe fruits. The Scorbutic Cachexy swiftly increases, and is soon fatal, if the patient continues to live wholly on gross, and salted food: the other, from an intermittent, is slow, and of long duration, if no  
continued



continued fever, or comatose, or apoplectic accession, or diarrhœa supervene it, and is commonly attended with an irregular intermittent; and sometimes invades persons, whose good living would exempt them from the Scurvy: sometimes there is a complication of both these Cachexies; which I have often seen in sailors, on their arrival at Port-Royal, from the coast of Guinea; and this compound Cachexy is exceeding obstinate.

51. The seat of the Scurvy would seem to be, chiefly, in the sanguiferous and ferous vessels; wherein forming obstructions, the stagnating juices, and their containing vessels, speedily tend towards putrefaction; whence a dissolution of the infarcted juices; ruptures of the vessels; hæmorrhages; ulcers foul, and putrid; or a resolution of the obstructions in consequence of this morbid tenuity; and reassumption of the vitiated juices into the mass of circulating blood; whence the most dangerous fluxes, and an increase of cacochymy; echymoses, with swift putrefaction of the extravasated juices, and a most loathsome, and speedily fatal Scurvy: for the grosser juices being obstructed, or extravasated, become tainted

ed and dissolved much sooner than those that are finer (§ 53.).

52. But the obstructions attending Cachexies that are generated by intermittents, 'tis probable are formed chiefly in one or more, of the different orders of lymphatics, whose juices are considerably finer than serum: consequently the spontaneous resolution of their obstructed lymph will require a much longer time than the resolution of red blood, or serum; because fine animal juices tend more slowly to putrefaction, than those that are grosser, and denser (§ 53.): for I suppose that even the salutary spontaneous resolution of condensed, or viscid, obstructed humours, is partly effected, in consequence of some degree of a tenuity which they acquire from a near approach to a putrid state (§ 58.)

53. Dr. Pringle found by experiment (page 416 of his book) **that** the crassamentum of pleuritic blood begins to corrupt in about eighteen hours, in 100 degrees of heat, by Fahrenheit's thermometer: but that the serum discovers no sign of putrefaction till about the 70th hour: now we may rationally conclude from similitude, that lymph is much slower to putrefaction



tion, in the same degree of heat, than serum, or in a particular proportion with respect to their densities: consequently, the nervous, or finest animal juice may be regarded as almost incorruptible.

54. This animal spirit is, besides, most probably possessed of a considerable degree of antiseptic power; and is apparently the antiseptic juice which preserves the sweetness of ingested<sup>i</sup> aliments; and sweetens and assimilates the chyle that is prepared from those that are previously<sup>k</sup> tainted: and as the extreme minuteness of the globules, will render it a powerful dissolvent of the cohesion of the constituent

<sup>i</sup> Doctor Pringle observed, (page 375 of his appendix) that a small bit of lean fresh beef, being immersed in water, and kept in 100 degrees of heat by Fahrenheit's thermometer, that is, about the measure of the native animal heat, begins to smell faint in twelve hours, and becomes rank and putrid in about eighteen; and if the flesh is beat to the consistence of pap, it becomes putrid in the same degree of heat, in half the abovementioned time: now it appears by Mr. Reaumur's curious experiments, that a bit of beef which was inclosed in a leaden tube, that was grated at each end, had not, after lying forty four hours in the stomach of a living buzzard, when it was almost wholly dissolved to a pap, the least ill scent of tainted meat; it only smelt a little faint, but not at all strong.

<sup>k</sup> The Gastric juices have likewise, without doubt, a power of recovering the sweetness of tainted flesh, and converting the chyle that is prepared from it into wholsom nourishment; since crows, and other animals that devour carion, suffer no injury by feeding on flesh that is highly tainted.

particles of substances that are most attractive of it; there is reason to believe, that it is chiefly by means thereof that ingested animal food is so soon and thoroughly dissolved: the great proportion of nerves that is distributed to the stomach, adds to the probability of this hypothesis.

55. This subtil animal fluid, after performing these necessary functions in the stomach, is absorbed, and reassumed into the mass of blood, where it continues to exert the same powers (§ 54.); and consequently dilutes, dissolves, and assimilates the chyle, that is still crude, viscid, and acescent, after its admission into the blood-vessels: it is absolutely necessary to the preservation of health, and not less so to the recovery of it when oppressed by sickness. The salutary resolution of obstructions from condensed, or crude and viscid juices, is, I suppose, performed partly in consequence of a near advance of the obstructed juices to a state of putrefaction (§ 52), and partly by means of the nervous fluid, probably in concurrence with other animal juices, that are nearly of the same tenuity; being transmitted to the obstructed matter by transcolation; or by

2 means



means of the great valved lymphatics, when the obstructions are formed in the sanguiferous, or serous vessels; and perhaps by finer canals, when in the lymphatics. These fine antiseptic juices are also of signal service, by retarding the transition of stagnating red blood to a putrid state; which they most certainly do, since obstructed and stagnating red blood would otherwise become putrid in less than thirty hours (§ 53.); and also by preserving the body from putrefaction, under long abstinence, and ardent fevers.

56. By means wholly of these fine salutary fluids (§ 55.), the morbid acrimony of the circulating juices, in a Fever, or other disease is corrected; whether it proceeds from a near approach of them to putrefaction, or acidity, or of the oily parts to rancidity; or from any other particular cacochymy, or dyscrasy. The morbid density, or viscosity of these juices is thereby also chiefly subdued, and partly by a tendency towards putrefaction; and a salutary crisis, or coction, resolution, and assimilation, or excretion both of the circulating and obstructed morbid matter, is promoted; provided these antiseptic, attenuating, and assimilating fine animal juices

are little or nothing vitiated; and the disease is not too powerful; otherwise the disease may gain the ascendent (§ 57.), and end in death. The bile, being absorbed, and mixed with the blood, also powerfully dissolves this vital juice; and if not much depraved, contributes to subdue a morbid lentor of the blood, and hasten and promote a salutary crisis; but when much vitiated, it greatly increases the obstinacy and fatality of the disease.

57. When the blood and serum have been long, and highly diseased, the fine antiseptic animal juices which are derived from these must necessarily become so too; and lose their salutary preserving virtue, unless the blood be quickly sweetened by a proper regimen, and medicines: hence the sudden putrefaction of obstructed juices (§ 18.), and their containing vessels, in the last stage of the Scurvy; and the swift increment and certain fatality of the disease, in those who remain subjected to the exciting cause of it.

58. But when the juices of one or two orders of lymphatics become chiefly, and first affected, as in the Cachexy produced by intermittents (§ 52.), the disease increases more slowly, and death and recovery



very are less swift; provided the Cachexy from this cause is almost the sole disease: and if a disease depends chiefly on obstructions of three or more orders of lymphatics, the decrease of it will be long, gradual, and sometimes scarce perceptible; because the most dense obstructed juice will be first resolved (§ 51), and the obstructions of the finer orders successively after, till the resolution of the obstructions of the finest terminates the disease.

59. Since the year 1741, I have been of opinion that even the salutary spontaneous resolution of obstructed juices, and subtraction of a morbid viscosity, or density, of those in circulation, are in some measure effected, in consequence of a tenuity which these juices acquire, partly (§ 52. 55.) from a particular degree of vicinity to a putrid state: I made some mention of this to Dr. Pringle, previous to the publication of his judicious Observations on the Diseases of the Army, who, I found had before conceived a like opinion. This reflection I first made, on observing that the blood was most commonly thinner and blacker, immediately after a salutary crisis, than at the fatal period of the West Indian Bili-

ous Fever; or even at some hours after death; which I then believed to be occasioned partly by a vicinity of the blood to putrefaction, but chiefly by the dissolving power of absorbed and reassumed Bile, from the intestinal canal (§ 56.); for the critical Icterus is generally more intensely yellow than the symptomatic, and the deeper the yellowness, the thinner and blacker is the blood, and the more profuse are the critical oozings of it: and by observing that the redness, or slight inflammation of the Conjunctive of the eyes, always disappeared in an advanced state of the disease, and was succeeded by yellowness; when this change happened early in the course of the disease, it was generally bad; the resolution of the Ophthalmia being, I suppose, in this case, occasioned chiefly by a vicinity of the blood to a putrid state, and partly by a highly vitiated Bile. In the West Indies, I had occasion to see one case of an exceeding ardent disease, unattended with any yellowish cast of the skin<sup>1</sup>

<sup>1</sup> By this it appears that an Icterus, or yellowish cast of the eyes and skin, is not produced even by the greatest vicinity of the blood to putrefaction, that is compatible with life: this is fully demonstrated in our Theory of the Bilious Fever of the West-Indies.



or eyes, which in seven hours destroyed the patient; apparently by a putrid fermentation, and dissolution of the blood. As a particular narrative of this case will be given in a future work, I shall only observe here, that this fermentation seemingly began in the intestinal canal, with a stupor; and was speedily communicated to the circulating blood, with an apoplexy, burning heat, and unequal pulse: after death the body became exceeding livid, and purple, chiefly in its most depending parts, and retained the burning heat, in the trunk, especially about the præcordia, for the space of four hours after death; probably from a continuance of the putrid fermentation; which being similar to that of a dunghill, took place, I suppose, chiefly in the acescent and unassimilated particles of the blood, and serum; for perfectly animalized juices seem incapable of producing any considerable heat in fermentation: hence it is that some animals living on vegetable food are so very liable to putrid, and speedily fatal diseases; whereof I have lately seen many instances in the country of Cleveland; and one, in particular, in a sheep, which was nearly similar to the

abovementioned, in the West Indies; the body of this animal retained a high degree of heat for some hours after death; being opened while yet warm, the abdominal viscera appeared livid, and exhaled a fetid scent: but a putrid fermentation of this sort is a very extraordinary occurrence in the human species, the case already mentioned being the only instance of it I have ever seen. In the Scurvy it never happens, nor is the circulating blood ever in the least putrid therein; tho' it may not be very remote from this change, in cases of the fifth species (§ 23.), towards the end of the third stage; the putrid ulcers<sup>m</sup>, and mortifications induced by this disease being a necessary consequence of local obstructions (§ 57.); and the tenuity of the blood, in the last stage of cases of the fifth species; and the laxity of its crassamentum, when

<sup>m</sup> Mr. Poupert, in his narrative of the effects of a most virulent and fatal Scurvy that happened in Paris, in 1699 (Phil. Trans. N<sup>o</sup>. 318. p. 223.) asserts, that notwithstanding the many putrid ulcers, and extensive mortifications, which frequently attended this malignant Scurvy, the brain, even in the most putrid cases, was always found and entire; consequently these putrefactions were effects of obstructions of the sanguiferous and serous vessels, in a highly cachectic habit (§ 57.). Had they been occasioned by a putrid taint of the circulating blood, the brain must necessarily have been



when extravasated, being chiefly occasioned by the great debility of the heart, arteries, and muscles of voluntary motion (§ 48.), a diminution of all the secretions, in consequence whereof a great proportion of thin humours are retained, and blended

been affected in the same manner, and indeed before any other part of the body; being, from its lax and moist nature, susceptible of a quick transition to a putrid state; it would seem then, to be less liable to obstructions, in the Scurvy, than any other part of the body. This author observed that all those, under this disease, who died suddenly, without any visible cause of their death, had the auricles of the heart as big as one's fist, and replete with coagulated blood, which stopping the circulation caused immediate death. Now the inseparable effect of putrefaction is directly contrary to this immediate cause of the death of these individuals; viz. a dissolution of the blood. I am of opinion that this coagulation of the blood, is caused by a very languid motion of it, from a great laxity and debility of the propelling powers, and fibres of the whole body; the distension of the auricles being a consequence of the laxity and debility of the solids. Tho' putrefactions of the blood are frequently mentioned by authors, as taking place in a living body; yet I am of opinion, that the circulating blood has never any sensible putrid taint; except in cases of a putrid fermentation, similar to the one beforementioned (§ 59.), where it may possibly begin to discover some faint signs of a beginning putrefaction, at the article of death; and may be rank in four or five hours after, from the continuance of the hot and putrid fermentation. A patient expiring under the ardent species of the Bilious Fever, in the West Indies, towards the end of the fifth, or sixth day of the disease; and of a total abstinence, caused by the immediate rejecting of every thing ingested; and breathing an air of between 80 and 90 degrees of heat; promises to have his blood advanced as near to a putrid state, as it ever is in the Plague, or any other disease, (the abovementioned speedily fatal

blended with the blood ; and by absorbed bile ; the subtil, antiseptic, and dissolving animal fluids (§ 55.) ; and in a small measure only from a vicinity of it to a putrid state ; for blood that is sensibly thinned by putrefaction only, is always black,

fatal one excepted (§ 59.) : yet, having opened the body of a sailor, that died in the end of the fifth day of this ardent Bilious fever, in Sept. 1744. at New Greenwich hospital in Jamaica, I found the blood in the right auricle and ventricle of the heart, of the consistence of new cream, and blackish, but sweet and untainted : soon after being put into a galley-pot, and exposed in the shade, it formed into a lax and florid coagulum, with a small proportion of a bloody serum ; and discovered no sign of putrefaction till the 13th hour of its being exposed, and 18th from the patient's death, when it exhaled a faint and disagreeable smell : the cystic Bile, being put into a small gally-pot, became not sensibly tainted till the 20th hour after the patient's death : a more particular account of this and other dissections will be given in our treatise of the diseases in the West Indies. Timoni asserts, that the Plague, in process of time, that is, towards the close of the disease, may either dissolve or coagulate the blood (agreeable to what Mr. Poupert observed in the abovementioned Scurvy at Paris) ; that some, after catching the infection, are only seized with a very short languor, and soon after they go about their business, without any inconveniency, but on the third or fourth day they fall down suddenly and expire : in this case, then, death is probably occasioned by a coagulation of the blood in the heart and large veins, as in the abovementioned similar scorbutic cases, and agreeable to the opinion of Timoni ; who thinks that the Plague may sometimes coagulate the blood as well as dissolve it : but when the Plague is attended with an ardent Fever, and Bilious vomiting, the state of the blood, in the last stage of the disease, is probably the same as in the last stage of the ardent Bilious Fever ; that is, dissolved, partly by a particular vicinity thereof to putrefaction, and chiefly by absorbed bile ; whence the profuse hæmorrhages,



black, and fetid. Besides the putrid fermentation abovementioned (§ 59.), that apparently took place in the circulating blood, this vital juice seems liable to particular fermentations, or effervescences, that proceed not from a tendency of it to putrefaction, but from other unknown causes, tho' a vicinity to a putrid state may sometimes be thereby at length induced. The most remarkable of this kind is that which occasions sudden accessions of burning heat, with great rarefaction of the blood, and profuse and obstinate hemorrhages

morrhages, and oozings of thin, black blood, which happen in the last stage of both these diseases; and the livid, and purple discolourings of the skin after death; which, in this case, are probably occasioned by a transcolation of the thin blood, thro' the sides of the cutaneous capillaries. There is a species of the West Indian Bilious Disease, which I term the third, that resembles the first mentioned species of the Plague; which is seldom attended with any Fever; and frequently ends in sudden and unexpected death; which, in this case also, may sometimes be occasioned by a coagulation of the blood, or a tendency thereto, and the debility of the propelling powers together: and the vibices which, in this species, frequently begin to appear before death, may be produced by a stagnation of the thickening blood in the cutaneous capillaries, and the inelasticity of the vessels together; these being too feeble to propel the stagnating blood forwards into the large veins: the livid cast of the lips and nails in the cold fit of an ague, probably proceeds from causes that are nearly of the same nature. It is, I think, certain that the Plague is not excited by a putrid ferment; since, if it were, every animal, within the influence of

hages from the nose, or lungs; which most commonly happens to persons under a pulmonary consumption, or that are naturally predisposed to this disease: this I say proceeds not from a putrid tendency of the blood, because its effect on this and the serum is similar to that of fire, which inspissates these juices, and gives the former a darker hue, without advancing them nearer to a putrid state; for in the course of my late practice, which is extensive among the country people, having had occasion to see

of such a ferment, must necessarily be infected; and convalescents would be still equally liable to succeeding attacks of it, because animal substances are always susceptible of putrefaction: and I know by experience that the Small-pox, which has the greatest analogy to the true Plague, is not excited by such a ferment; for, in October 1754, I inoculated the son of Robert Thomson, weaver in Skelton in Cleveland, aged three years, with small cotton doffils that had been well moistened with fresh variolous matter, in October 1753, and then rolled in powdered salt-petre; which discovered as strong and active infectious power, after being twelve months kept, as the most recent; and much more than some other impregnated doffils, which were only preserved eight months, by keeping them in a well corked vial; for these being first applied in two small incisions made in the arm of this boy, excited the eruptive Fever on the fifth day after inoculation, which ceased at the end of the third, leaving the patient in perfect health: then were the first salted ones applied to the same incisions, when almost cicatrized, and in 30 hours after, discovered thereon obvious marks of infection, and excited a favourable pock: I shall take another opportunity of giving a particular narrative of this case, which was attended with extraordinary circumstances.

many



many cases of spontaneous bleedings of this sort, I carefully examined the blood which was drawn from the arm, in each case, which I always found with a fizy, whitish crust a-top, the coagulum under this crust being blackish, and very dense, and tenacious; and with a very small proportion of serum. In this state I have seen it, even in the ardent hectic accessions, near the fatal period of the last stage of this species of consumption<sup>n</sup>, which frequently destroys without any internal suppuration (§ 81.); the hæmorrhage, when from the lungs, being often only succeeded by a spitting of tough phlegm: in this case the coagulum under the fizy crust was always exceeding black, but tenacious; its  
salutary

<sup>n</sup> The notion that prevails, that a putrid tenuity of the blood is the cause of these Hæmorrhages in consumptive habits, has given rise to the erroneous practice of administering glutinous inkrassants, and bark, in such cases; from which I have lately observed very bad effects: the first of these increases the viscosity of the juices; and the last the rigidity of the fibres, the ardency of the hectic accessions, and the inflammatory density of the blood; and consequently the Hæmorrhages, and malignity of the disease. The most successful remedy is frequent bleeding, which lessens the velocity and heat of the circulating juices, and destroys an inflammatory lentor, or the particular fermentation that is the immediate cause of it; which indeed is generally practised: the most successful internal medicines that I have experienced are, nitre given in cold spring water, and the juice of the common broad-leaved

salutary crasis, or constitution being irrecoverably destroyed. But the blood effused by these hæmorrhages, which is probably arterial, always appears of a bright red. A fermentation somewhat similar to this last would seem to contribute to the formation of inflammatory Fevers, from the similarity of the blood in these, and the forementioned inflammatory hæmorrhages: particular fermentations of this kind, perhaps, take place, in some measure, in almost every species of Continued, Remitting, and Intermitting Fevers. A particular species of an effervescence of the blood, I observed in a late female patient, unhappily afflicted with a distempered mind; and naturally

leaved plantain: the first of these cools, and attenuates; the last is cooling, attenuating, and gently astringent; and both these, particularly the last, are probably possessed of a specific power that is destructive of this morbid effervescence, or other unknown cause, by which the blood and serum are thus changed and condensed; for it cannot be wholly an effect of intense heat, as appears in the sequel. It is now well known, that the most powerful remedy for checking an effervescence or ebullition of the blood, and violent hæmorrhage, is the cold bath; which may be used for particular parts (§ 81.), or the whole body, according to the degree of violence and obstinacy of the Hæmorrhage: the cold bath may be used with safety, and the greatest hopes of success, even for inflammatory Hæmorrhages of this sort, which sometimes happen in the eruptive Fever of the Small-pox, and in the beginning of other malignant Fevers, as observed by Dr. Dover.



naturally of an acute understanding, and delicate constitution: the accessions of the effervescence, which, in this species, was not attended with any considerable increment of the native heat, were always manifested by a considerable and unusual swelling of the veins of the arms, high unruly spirits, and an imperious disposition: in the first of these, that happened after she was put under my care, I drew twelve ounces of blood from the arm, which, after standing some time, discovered a little fizziness a-top, and was dense and blackish under the fizy crust, with very little serum: at a fortnight after, in the second accession, I drew eight ounces of blood, which was florid a-top, but dense and tenacious, with very little serum: this last species of effervescence would seem to be excited, chiefly, by the morbid affection of the mind. A considerable degree of fizziness and density of the blood and serum, sometimes attended a general rheumatism, tho' accompanied by a very small degree of febrile heat: and in many very ardent Fevers, especially in hot climates, the blood has no white or yellowish fizy crust at top, and but a small degree of morbid density,  
nor

nor doth the serum ever form into a whitish coagulum. Therefore I am inclined to believe, that this inflammatory fizziness of the blood, and serum, is not produced by the febrile heat, (as Dr. Huxham supposes, page 36 of his Essay on Fevers) but by a particular effervescence of these juices, or some other unknown cause: when this effervescence, or unknown cause, ceases, the blood and serum resume their natural state; which they probably would never recover, were this converted into a jelly purely by intense heat. The spontaneous bleedings in the Scurvy may sometimes be occasioned by a fermentation and consequent rarefaction of the blood, as those abovementioned. On these principles, chiefly, (§ 51 to 59.), I have executed a sketch of a new theory of the resolution of obstructions, and crises of Fevers, illustrated with practical observations, which I may, sometime hereafter, be inclined to publish. What is said, with regard to the internal and immediate causes of the Scurvy may suffice: the theory of this disease, however, is less material, since the true proximate cause and infallible cure of it, when curable, are certainly known.



## C H A P. III.

*Of the prevention of the Scurvy, on board  
of his Majesty's ships.*

60. **T**HE treatment of the scorbutic patients at Cumberland harbour in Cuba, in 1741, having discovered very powerful antiscorbutic, and restorative qualities in rice; a short narrative of it will properly precede the diets we recommend for preventing and curing the Scurvy, whereof this grain is a principal article.

61. As soon as the Scurvy became rife among the unseasoned mariners in the fleet commanded by admiral Vernon, at Cumberland-harbour, in August 1741, wooden-houses for the accommodation of the sick, were erected on the shore, by an order from the admiral; and by his surgeon, Mr. Bruce, a gentleman of a good medical character, the following regimen was recommended for the scorbutic patients: 1. For breakfast, water-gruel. 2. For dinner, rice boiled with one piece of salt beef, or as much as was sufficient

G

to

to give it a little relish, the meat being first cut into small morsels. 3. For supper, water-gruel, or rice. 4. An equivalent of sugar was allowed by the purser for the articles of the stated Navy-diet, that were saved by this regimen; which was chiefly used in sweetening gruel, and rice: as much good biscuit, however, was allowed as the men inclined to eat. 5. To each man daily, was distributed half a pint of rich Malaga wine, with which the rice was commonly eaten; for this wine happened then to be served to the fleet in lieu of diluted rum. 6. Sweet river water was lightly acidulated with elixir of Vitriol, for common drink; and the decoction of the leaves of twigs of green Guaiac was administered by way of medicine.

62. The good effects of this regimen were soon conspicuous: the scorbutic patients recovered on it apace, and much faster than they commonly do in the King's naval hospitals on fresh broth and meat; and were rarely seized with a dangerous Diarrhœa; which often happens to those on the hospital diet, especially if they eat much ripe succulent fruit: for rice, being well boiled, is easy of digestion, yields  
wholesome



wholesome and easily assimilated nourishment, and is exceeding efficacious in bracing lax fibres, and particularly those of the stomach and intestines; and it has this good property, that it may be long kept sound, in the West Indies, if preserved from moisture.

63. These good effects (§ 62.) I attributed chiefly to the rice, which made two thirds of the patients diet; because I found that many of the Kent's scorbutic people, who had the speediest recovery, had drank little or none of the green Guaiac decoction, which was entrusted to the care of a sailor who attended as nurse, to be administered to the patients; and but very little of the acidulated water: and above half of the Kent's were recovered, before they began to supply them with mountain cabbage, and about two dozen of oranges for the whole once a week; for very little of this fruit could be found in the woods near the harbour. There were a few indeed more advanced in the disease than any of the rest, for whom I directed the nurse to make flummery, every night for supper; which they ate with wine and sugar; and it was remarkable that two of these, who

were carried ashore in a lying posture, lest they should faint away, were able to walk about with a good deal of strength, in fourteen days. Flummery is made by mixing oatmeal and water to the consistence of burgou, and letting it stand till it ferments; when more water is to be added, and all the mealy part separated from the husks, by straining, which may be done thro' a piece of old ensign: being then about the density of new milk, it is put over the fire, in a proper vessel, and kept stirring, 'till it boils about ten minutes: if macerated early in the morning, in the Torrid Zone, it will be fit for using to supper; and may be made into flummery, or gruel, by adding a less or greater proportion of water to the strained and fermented emulsion: it is an exceeding light food, and greatly promotes the diuresis; and grows sourer and more diuretic the longer it is kept in maceration.

64. Scorbutic ulcers begin to look well, and discharge good matter, as soon as the habit is in a good measure repaired: at Cumberland harbour, I dressed them with remarkable success, with the green leaf of a species of *Convolvulus*, which crept on the  
sandy



sandy beach, by the sea-side: this plant carries a bell-flower, of a pale red; the leaf is of an oval form, about three inches long, and two broad; smooth, stiff, of a dark green, and shining on its upper side: by this dressing, spungy flesh, and callous edges were most effectually repressed; chiefly, I suppose, from the equal compression of the surface of the ulcer by the smooth, stiff leaf; and the ulcers soon incarned and cicatrized. A marine belonging to the Kent, who had a large ulcer in the leg, cured in a very short time under this dressing, was immediately after seized with a double tertian Intermittent, which carried him off in the third paroxysm: the speedy healing of the ulcer, I suppose, contributed to the fatality of the Intermittent; for this happened after the accession of the anniversary north winds, when Intermittents were commonly favourable, in places that have naturally a good air: its malignity might have been prevented by two or three gentle purgatives, administered about the cicatrizing of the ulcer, with corroborants in the intervals of purging. These particulars (§ 61 to 64.) being premised,

we shall now proceed to the subject proposed for this chapter.

65. In order to prevent the Scurvy, in as great a measure as the situation and manner of life of the common sailors, and marines of his Majesty's navy, and the principal articles of their victuals will easily admit, at a moderate expence; I would recommend, 1. That the oatmeal for the navy's use, being ground smaller than usual, and well cleared of husks, be made into water-gruel of the consistence of cream, in lieu of burgou, and sweetened with molasses. This last article will impart thereto aperient and deterfive qualities; (§ 38.) and, besides, will tempt the sailors to eat their full allowance of it, which they very seldom do of the thick, husky burgou, which, indeed, is only fit for hogs. I reckon that two pounds of molasses will be sufficient for the gruel of 100 men; consequently the allowance for 500, will not exceed one shilling and six-pence. 2. That pepper in powder be always mixed with boiled pease, in the proportion of half an ounce to a hundred men; whereby this mess will be greatly improved, which otherwise is liable to



to generate slime in the first passages, and consequent flatulencies and indigestion, and a morbid lentor of the mass of blood, and many bad effects which thence arise, at least in puny and diseased habits; and the expence of this allowance of pepper is trivial. 3. That Suffolk cheese be no longer an article of the navy diet; giving, instead of it, butter, or an equivalent of sugar, or diluted spirits; for cheese may more easily be dispensed with, as the men will eat a much greater share of oatmeal, when dressed as above directed, than they do at present. 4. That salted beef and pork, especially the first of these, be always very well freshened; whereby the substance of the meat is considerably opened, and rendered less tenacious and much easier of digestion; and, besides, excessive thirst and its bad effects (§ 40.) will be in a great measure prevented. 5. That a competency of made mustard be distributed to each mess, on beef and pork days, to be eaten with their meat; or onions, or pickled cabbage in lieu of it. 6. That the water casks be unbunged three or four days before using the water, if putrid; and, in the West-Indies, where it soon becomes verminous, the

vermin might be destroyed, and the water rendered wholsomer, by suspending in each cask of water, two or three days before using, about half a pound of quick-lime, tied up in brown paper, which will produce the good effects just mentioned, without impregnating the water so much with the lime as to render it nauseous. The lime may be made occasionally in the furnace on board, of lime-stone or shells. Perhaps the putrid fermentation, which water commonly undergoes in casks, might be prevented, by putting two or three ounces of molosses in each cask. 7. That in northern climates, molosses beer, medicated with the extract of black spruce, (§ 47.) be supplied to the navy, in lieu of malt beer; and when the beer is exhausted in the course of a long cruize, or voyage, and distilled spirits are served instead of it, that these be always mixed with three-fourths of water; sweetening this beverage with molosses, and acidulating with verjuice, or, in defect of this, with spirit of vitriol, or vinegar: molosses to the value of a shilling, will be sufficient for the allowance, for one day, of 500 men; and the expence of the verjuice, or spirit of vitriol, will be inconsiderable, since



since this article is only necessary after being long at sea, when the Scurvy is most likely to make its appearance; and that in the West-Indies, where rum is commonly served, it be always diluted with a suitable proportion of water, and sweetened with molasses: and that after four or five weeks at sea, it be also acidulated with <sup>a</sup> lime-juice, or with spirit of vitriol in defect of the former, at least to unseasoned mariners, between the months of February and November. (§ 31, 32.) 8. That in clear dry weather, in cold, or temperate climates, after four or five weeks at sea, the men be served boiled rice, instead of biscuit, or at least rice and bread on alternate days: but if the weather is cold and rainy, or hazy at first setting sail, it will be adviseable to begin immediately with serving rice, at least every other day; which is to be continued, unless a favourable change of weather soon happens, till the ship arrives at a port, where sufficient supplies of fresh meat, or greens, or fruits may be obtained. In a summer passage to Jamaica, it

<sup>a</sup> The lime juice may be clarified and prevented from growing musty, by mixing with it about a third part of the strongest rum; or by boiling it to an extract, as proposed by Dr. Lind.

will

will be proper to begin serving rice instead of bread in the latitude of Madeira ; especially if an attendance on transports and victualling ships, is likely to prolong the voyage ; or if the men are suspected to have something of a scorbutic Diathesis from a former cruize or voyage, which they had not an opportunity of getting wholly rid of (§ 5. 8.) before their departure from England. But in a winter passage to Jamaica, the serving of rice may be postponed till the ship arrives under the Tropic. It will likewise be exceeding proper to serve rice in lieu of bread to the crews of ships at sea in the West-Indies, after being four or five weeks out ; especially to unseasoned Europeans, between February and November. It will be much less necessary between October and March, and seldom at all for seasoned Europeans, Creols, or Negroes ; (§ 8. 33.) except in rainy weather, or lying off places that are remarkably productive of Intermittents, and very near the shore : (§ 32.) for rice, by means of its light, nourishing, and corroborative qualities, will also be a good preservative against the dangerous Continued, Remitting, and Intermitting Fevers, and Fluxes  
of



of the West-Indies. 9. That each man be provided with two suits of clothes, in order always to shift with dry clothes after getting wet. 10. That the ship be kept sweet and clean between decks, and as dry as possible in rainy and stormy weather, and airy. In the West-Indies all the inhabited parts of ships of war are generally dry, and well aired, (§ 13, 14.) except the bay, or fore-part of the ship between decks at sea, (§ 15.) where the air may be corrected, by putting a red-hot loggerhead in a bucket of tar or pitch, as directed by Dr. Lind; and this part of the ship in particular ought to be kept very clean and dry; and the bedding of the whole crew may be aired upon deck once a week. 11. That sailors newly arrived from abroad, or after a long cruize, be not immediately ordered out again, except on necessitous occasions; (§ 11.) and that ships that are by these manned, do carry to sea a large stock of greens and roots, for the use of the common seamen. 12. That the companies of ships, on their arrival in a port, after being long at sea, be supplied with green vegetables and roots, to be boiled in broth, or eaten with fresh meat. In European  
ports,

ports, one or more of the following articles, which are most suitable to this purpose, may generally be had, viz. cabbage, coleworts, spinage, lettuce, beets, endive, orache, common English mercury, turnip, young rape, and mustard tops; young nettles, onions, leeks, garlick, parsley, fennel, sage, mint, thyme, sweet-marjoram, tops of young corn, mugwort, turnips, parsneps, carrots, pompions; and in the West-Indies, caleluc, plantains, yams, sweet potatoes, pompions, okrey, mountain cabbage, pimento, cod-pepper. In places where the crews cannot be supplied with fresh meat, some of the most suitable of these simples may be boiled, and eaten with salt beef that is well freshened: and as most of the messes save a good deal of bread and meat out of their allowance, they ought to exchange them for ripe fruits, or other antiscorbutic vegetables, at the end of each cruize or voyage. By this means their habits will be soon purified from any degree of Scorbutic Cacochymy they may have contracted at sea. (§ 11. 35.) 13. That in very rainy or moist weather, each mariner be allowed a double portion of diluted brandy or rum, sweetened with molosses, which



which ought then also to be blended with a less proportion of water than in dry weather. This must needs be attended with some expence, which, however, will be fully compensated by the advantages gained thereby. 14. That ships intended for the West-Indies be ordered to sail from England, so as that they may arrive in the Torrid Zone between the autumnal equinox and the winter solstice, if the service will admit of it; (§ 10. 32.) that they make short cruizes the first year after their arrival, and don't lye too close to low marshy shores, nor remain long in places that are very subject to rains; that the sailors avoid as much as possible getting wet, and when this is unavoidable, put on dry clothes when their watch is out, and go very seldom ashore in unwholsome places, at least during the first year after their arrival in the Torrid Zone. By taking these precautions, they will also probably escape the Bilious Fever, Malignant Intermittents, and Fluxes. There is the greatest reason to believe, that this method of victualling his Majesty's sailors and marines, and these precautions, will most effectually preserve them

them from their most fatal enemy, the Scurvy; or at least occasion this disease to be slight, never fatal, and appear very seldom among them.

66. Convalescents, with relaxed solids, and some degree of Cacochymy after a Fever at sea, may be preserved from an attack of the Scurvy, if it appears not immediately after the crisis of the Fever, by the regimen specified in the sequel; (§ 67.) two or three gentle purgatives, and some Peruvian bark; observing to keep the belly temperate after the ingestion of the bark, and obliging the convalescents to move pretty much about upon deck.



## C H A P. IV.

*Of the method of curing the SCURVY, particularly at sea, and in desert places.*

67. **T**H E Scurvy appearing on board, from a neglect or defect of the foregoing precautions, and scheme for victualling the navy, (§ 65, 66.) must be opposed by a regimen of greater antiscorbutic efficacy, excluding the principal producing articles of this disease. That this may be accomplished, I would recommend that each mariner, who discovers the signs of a beginning, or formed Scurvy, be restricted to the following regimen. 1. For breakfast every morning, water-gruel, lightly acidulated with lime-juice or verjuice; or by boiling therein, sliced apples or other subacid fruit, when such can be had, and sweetening a little with molosses. 2. For dinner, boiled rice, which may be eaten with wine and sugar; or, in defect of wine, with good cyder, or a beverage of distilled spirits, water, and sugar. A few pipes of wine, however, ought to be carried to sea in each ship, for the use of the

scorbutic patients ; and when diluted rum or brandy is served in place of small beer, each scorbutic patient should have an allowance of it, besides half a pint of wine to his rice ; and in defect of wine, a double allowance of the former beverage : the portion allotted for drink being always acidulated with lime juice ; or, in defect of this, with verjuice, or spirit of vitriol.

3. Sassafras, nettle, or juniper-berry tea, sweetened with brown powder sugar in the afternoons ; with some good biscuit, softened a little in water, and eaten with freshened butter. 4. For suppers, oatmeal flummery, which may be eaten with honey when such can be had, or with wine and sugar. 5. The water for their common drink being the best on board, or corrected in the manner before specified, (n. 6. of § 65.) should be lightly acidulated with the spirit, or elixir of vitriol. 5. The patients ought to abstain wholly from salted beef and pork, beef fat, and dense heavy flower pudding with salted fuet ; since the disease must needs be very difficult of cure, while its exciting causes subsists, without green vegetables or fruits, especially if there is no lime or lemon juice on board for the use of



the scorbutic patients; and 'tis certain, that when these principal causes are taken away, the disease may be soon cured, even without greens, ripe fruits, vegetable acids, or fresh meat, as appeared at Cumberland harbour in 1741, (§ 61, 62.) It will not, however, be an easy matter to oblige them to this abstinence from salted meat on ship board, especially as they commonly have a particular desire for it (§ 20.); for they will always find means of getting a little now and then from one or other of their messes, or ship-mates. 6. The patients ought to move pretty much about upon deck, or have some easy task assigned them, that demands moderate exercise. The expence of the extraordinary articles of this antiscorbutic regimen, will be compensated by the saving thereby made of salted meat, and some other articles of the stated navy victuals.

68. If the patient under this regimen (§ 67.) has a good appetite and digestion, with a free and natural diuresis, and is temperate in his body, internal medicines will be wholly unnecessary: but if the appetite is palled, with a bad taste in the mouth, sour belching, and flatulencies; first correct

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the acid, and destroy the viscid slime that prevails in the primæ viæ, by small doses of salt of tartar dissolved in pure simple water, and repeated till these symptoms cease: then give a moderate dose of a purgative composed of two-thirds of pil. ruf. and one of rhubarb, with extract of gentian or wormwood, or sea water. But if a depraved appetite is attended with a bitter taste and foulness of the mouth, nidorose belching, nausea, and thirst, a tainted slime prevails in the stomach and intestines, which must be evacuated by a purgative or two; sea water being antiseptic, is in this case one of the best cathartics; and the putrid tendency of any slime that may still remain, or be generated together with the Scorbutic Cacochymy, will be soon corrected by the regimen already specified (§ 67.) After purging, the stomach may be corroborated, if necessary, by an infusion of orange peels, or wormwood in boiling water. It may sometime be proper to mix a little of the tincture of peruvian bark, occasionally, with each dose of this infusion.

69. If the diuresis is much diminished with high coloured or turbid urine, and recovery is slow; or if there is a tendency  
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to the first, or leucophlegmatic species (§ 19.) diuretics will be absolutely necessary. In this case, give twenty or thirty grains of nitre, rubbed with four or five drops of oil of juniper, three or four times a day, with an empty stomach; that is, about an hour before each meal, and at bed time, in a draught of the decoction of roots of garlick or squills; or an infusion of broom buds, nettles, or juniper berries. If this produces little effect, substitute regenerated tartar in place of nitre, and administer a purgative or two of Glauber-salt and manna, adding to each dose about two drams of polychrestic-salt. Diuretics are generally of good use in the Scurvy, which speedily increase with scanty urine; (§ 25.) and declines apace with a free and plentiful diuresis.

70. In cases attended with costiveness, let the belly be kept moderately open, or in a temperate way with soluble tartar, or equal parts of flowers of sulphur and cream of tartar; or with pills made of equal parts of Spanish soap, gum-guaiac, aloes, and syrup of oranges.

71. Diaphoretics are likewise at times necessary, and have generally a good effect;

such as the spirit of Mindererus, or rather a neutral mixture composed of volatile salt armoniac and lemon juice, for this vegetable acid is a more powerful attenuant and diaphoretic than vinegar; an infusion of saffrafras, or elder flowers, with a little saffron; a decoction of guaiacum-wood, camphire rubbed with nitre, and gum-guaiac. These are to be taken in a moderate dose, the patient using gentle exercise after them, that the diaphoresis only may be increased, without forcing a sweat; unless there be a spontaneous tendency to this excretion, which, however, seldom happens till the disease is almost wholly subdued.

72. I must own, I have no favourable opinion of the sudorific method, which is by some authors recommended in every species and stage of the Scurvy. Sweating may indeed tend to prevent the disease, as before observed; (§ 7.) and may possibly have a good effect in the very beginning of it, and also in its decrease, after the matter that was obstructed is almost wholly moved, and some portion of it only evacuated; and even in this convalescent state, diuretics, and gentle aperients, and corroborative cathartics, I am of opinion, are far better  
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than sudorifics. But after the disease is much advanced, with a crude and viscid state of the animal juices, and obstructions of the capillary vessels, chiefly from this Cacochymy, without any great degree of Anasarca, or Ascites; sweating, I am inclined to believe, will not only be ineffectual, but generally detrimental. In this case, the first, and principal intention, after having due regard to the cleansing, and strengthening of the stomach and intestines, and the most suitable regimen, is to attenuate the viscid juice, and resolve obstructions; which is nowise effected by sudorifics, which evacuate the most fluid parts of the humours, and rather increase their morbid viscosity. The obstructions of some of the cutaneous vessels may indeed be forced by them; and the languid circulation in the small vessels accelerated: but the disease of the juices still remaining, and the vital power being in some measure weakened by this commotion, the obstructions must necessarily relapse, and the circulation flag, as soon as the powers of the ingest sudorific cease to act: consequently a frequent repetition of sudorifics, must, at least, greatly reduce the patient, and occa-

sion him to be longer in a convalescent state, whom I suppose to have the benefit of a proper regimen: but if this is wanting, they will probably, in a high degree of the Cachexy, have a much worse effect. It is likewise obvious that sweating, whether it be spontaneous, or artificial, can have no good effect near the end of the third stage of the fifth species of the Scurvy (§ 23. 59.); when there is a general dyscrasy, acrimony, and dissolution of the juices, partly from a vicinity to putrefaction: and in many cases of the second and third species (§ 20, 21.), it will often be found very difficult, or impossible, to force a sweat. Were the Scurvy a cutaneous disease, sweating might indeed, with good reason, be recommended therein.

73. <sup>a</sup> Cabbage, coleworts, spinage, turnips, carrots, parsnips, and other fresh greens and roots of the like nature, that

<sup>a</sup> On the 26th of May last, a small bit of the lean of a flank of mutton, that had been kept two days, I immersed in a mixture of cabbage sprouts, and the water in which these were boiled, after it was grown fetid, by standing some days in the shade: and then also immersed a small bit of the same mutton in spring water. On the 3d of June, the mutton in the pure water was white, tender, and fetid; while the other in the putrid mixture, was firmer, plumper, and less blanched; and after being washed in water, had scarce any disagreeable smell.

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are excellent both for the prevention and cure of the Scurvy, are not possessed of any fudorific quality. They would seem to produce their antiscorbutic effects by keeping the belly soluble; relaxing the secretory and excretory tubes of the kidneys, and consequently increasing the diuresis, and by their demulcent and resolvent properties. The fresh juices of scurvy-grass, cresses, and such like, are ° carminative, diuretic, diaphoretic, and corroborative; and incide, and attenuate viscid humours. Those of limes, lemons, and oranges, the most powerful antiscorbutics yet known, are, attenuant, deobstruent, diaphoretic, diuretic, and antiseptic; the juice of sweet oranges has, besides, a demulcent quality, but is less diaphoretic than the juice of

° Kramer reckons these acrid vegetables carminative, and I here ascribe to them the same quality; though I am of opinion, that the belchings that happen soon after the ingestion of them, proceed from air that is generated by a fermentation, which they readily undergo in the stomach: if similar in this respect to mustard, which being mixed up with hot water, and placed in a degree of heat equal, or even superior to that of the human body, falls in a few minutes into a considerable fermentation, resembling a vinous one, and generates much air. The mustard having its acrimony greatly increased in consequence of this change, begins after some days to grow vapid; and then falls into an acid fermentation, which gradually increases, is insensible, and apparently generates little or no air.

limes or lemons, and yet is esteemed the most efficacious antiscorbutic: but none of these juices is commonly sudorific, unless taken in a large quantity, and directed to the skin by uncommon warmth; which effect is equally produced by pure cold water, under the like circumstances.

74. The most speedy and perfect cures that ever came under my observation in the Torrid Zone, were performed without forcing one sweat. In the West-Indies, sweating is at length produced spontaneously, and in the most natural and salutary manner, by means of a proper vegetable diet; for the diaphoresis necessarily increases by degrees, as the lentor of the blood becomes thereby subdued, obstructions resolved, and the fibres corroborated; and the habit being restored almost to a healthful state, salutary sweats are readily solicited by the heat of the external air (§12.)

75. The sudorific method may be proper enough in cases attended with a considerable anasarca, or ascites, in order thereby to evacuate some portion of the anasarcaous or congested water: but, in this case, diuretics and cathartics are chiefly to be depended on. It may sometimes also be successfully



cessfully practised in cases attended with violent rheumatic pains; the other symptoms of the Scurvy being inconsiderable.

76. The gums beginning to swell and bleed, may be washed three or four times a day with alum water, with a small proportion of tincture of myrrh, or with equal parts of tincture of myrrh and lime juice, or acacia.

77. We have hitherto supposed the disease to be opposed and checked in its first stage: but if a proper regimen is neglected, it will speedily increase, and induce many dangerous symptoms and symptomatic diseases; which commonly require particular treatments. The fore-mentioned articles of diet (§ 67.) are perhaps the best that can be conveniently carried to sea, and supplied abundantly at a moderate expence, for patients in every stage and species of the Scurvy. The medicines already recommended (§ 68. to 76.) may likewise be administered throughout the course of the disease, according as they are indicated.

78. The different aspects of the Scurvy, from the most predominant symptoms, may be regarded as so many different species; whereof we have already enumerated five,  
(§ 19.

(§ 19. to 23.) which comprehend all the different cases of this disease that occurred to me in the West-Indies. The first species (§ 19.) is distinguished by a leucophlegmatic habit, and anasarca, which begin and increase with the Scurvy, and are commonly at length attended with more or less of an Ascites. We must chiefly regard the Dropsy, in the cure of this species; which is to be attempted by attenuating and inciding medicines, purgatives, diuretics, diaphoretics, sudorifics, and corroboratives. This species being of a cold nature, with very lax and unelastic solids; the medicines that are administered ought to partake of aromatic, acrid, corroborative, and stimulating qualities, or be joined with others of this nature. Of the class of attenuants and deobstruents, some of the best articles in this case are, borax; volatile and fixed alkaline salts; cantharides, millepedes, Spanish soap: of cathartics, rhubarb in powder, mixed with a solution of polychrestic salt, is one of the best; or two parts of jalap, and one of rhubarb, rubbed with a few grains of salt of tartar, and four or five drops of oil of juniper. For as there is in this species a  
great



great disposition to dangerous diarrhœas, the purgatives that are used ought to partake of corroborative, and diuretic qualities: in defect of rhubarb, a moderate dose of jalap, or *sal mir.* Glaub. or cath. am. with some drops of oil of cinnamon, or mint, may be given. Of diuretics, which are chiefly to be insisted on, as being the safest, and most effectual medicines in this case, some of the best are, nitre, or regenerated tartar, rubbed with some drops of oil of juniper; salt of tartar, or other alkaline salt, which is of a warm nature, laxative, attenuating, absterfivè, and diuretic, and consequently excellent in this species; with these it will be proper to drink made mustard, diluted with pure cold water; a decoction of garlic; an infusion of broom-buds, juniper berries, nettles, or such-like. Some of the properest diaphoretics, and sudorifics here, are, snake-weed roots, *sassafras*, *saffron*, camphire, (*trea-cle-vinegar*) diaphoretic antimony, golden sulphur of antimony, volatile alkaline salts: and among the best corroboratives are, Peruvian bark, orange-peels, cinnamon, wormwood, roots of gentian, sweet cane, and sharp-pointed dock; chalybeat-wine; prepared steel.

79. In the West Indies, I have observed a remarkable good effect from a very simple topic, in scorbutic swellings of the legs, and stains of the skin; which consists only in rubbing the affected legs, knees, and hams, three or four times a-day with a fresh-cut lime. And this, indeed, is probably the best topical application against these symptoms: for lime juice being a powerful antiscorbutic, thin, and penetrating, is readily absorbed, or passeth by transcolation to the most deep-seated morbid parts, and acts immediately upon them with all its efficacy; whereas the ingested juice must be greatly diluted, and altered, before it can reach the diseased extremities. The acrid, aromatic oil of the rind has also a good effect, as a stimulant, and corroborant; this and the cooling and attenuating juice of the pulp correcting each other, and mutually contributing to subdue the immediate causes of the local disease.

• 80. The fresh-cut rind should be rubbed on in a greater or less proportion, with respect to the pulp, according as the swelling of the legs is more or less indolent, and unelastic: and in the most unelastic swelling of them in the first species, besides



besides this topic, it will be proper to pour cold water on them, every morning and afternoon ; drying, and then chaffing them with a cut lime, after each bathing. Sweet oranges being demulcent, and in some measure emollient, their fresh succulent pulp will be the most successful embrocation for very hard, and painful swellings of the calves of the legs, hardness and stiffness of the knees, contractions of the flexor muscles of the legs, and rigidity of their tendons, as in the third species of the Scurvy ; and less proper in very unelastic swellings, than a fresh-cut lime, or lemon : but as these fruits are rarely to be had after a long continuance at sea, when the rise of the Scurvy makes them highly necessary, their preserved juice and dried rind may be substituted in lieu of them ; this last being softened in the juice occasionally for use, or infused therein ; or the distilled oil may be used in place of the softened rind ; and in northern climates, verjuice may be rubbed on, in defect of lime-juice, and made mustard, instead of the rind, especially for indolent swellings. The frequent and long-continued rubbing in the application of these topics will

will also have a good effect. I have lately applied an epithem of green nettles, well bruised in a mortar, to the œdematous legs and feet, after a continued Fever, with remarkable good success: I am of opinion this will be an excellent topic for the indolent swellings of the first species of the Scurvy; and may be applied as an epithem, or rubbed on, after being bruised with a little verjuice, or lemon-juice.

81. The second species of the Scurvy (§ 20.) requires a greater proportion of attenuants and deobstruents than the first, with some demulcents; and a much less of purgatives, diuretics, diaphoretics, and corroborants: it is for the most part, indeed, soon cured by a proper vegetable diet only. One or more of the articles prescribed in the foregoing (§ 68 to 76.) may be administered therein, as they are indicated: and in order to accelerate the cure of particular symptoms, pour cold sea-water on the œdematous legs, twice a-day, drying and rubbing them immediately after, as is directed (§ 80.): chafe scorbutic stains with the same topic; likewise small indolent and elastic tumours on the thighs, and arms, and tubercles in the hams, when these accompany the disease. In case of hæmorrhages



hæmorrhages from the nose, give allum, or German acacia, or spirit of vitriol, with Peruvian bark; if the effused blood is black, and thin, with a diminution of the native heat; but if the blood is dense and florid, and the hæmorrhage violent, with a feverish heat, give nitre dissolved in cold spring water, and the juice of limes or sorrel; or vinegar diluted with cold water (n. c. of 59.); applying at the same time, to the nape of the neck, some rags moistened with cold oxycrat; and if the bleeding still continues, the legs and the hands, or the whole body may be bathed in cold water. I lately saw a profuse hæmorrhage from the nose readily stopt, by keeping the genitals immersed some time in cold water; and one case of a very violent hæmorrhage from the nose in a lad aged 16, which was immediately stayed by immersing the whole body in cold water; which, however, was succeeded by a Polypus at the posterior nerves, probably from coagulated blood, which is at present very large: the patient still bleeds at times, and is now hectic, and dangerously ill, though without any cough, or spitting.

82. The third species (§ 21.) requires a still greater proportion of attenuants, deobstruents,

obstruents, and demulcents, and a less of corroborants than the second, together with some emollients: consequently sweet oranges will be the most suitable remedy therein, both for internal and external use; since their juice is attenuant, deobstruent, emollient, and demulcent; but as this fruit cannot be supplied in a sufficient quantity, nor long kept at sea, we must, in lieu of it substitute the regimen already specified (§ 67.), with the addition of some dried okrey, which is an excellent emollient and demulcent, boiled in water-gruel, or with portable soup; yet the navy-surgeons may easily provide themselves, in the West Indies, with enough of the juice of sweet oranges, for outward application. First foment with warm water, in which a little soap is dissolved, the contracted flexor muscles of the legs, and their rigid tendons, twice a-day; or let them be held over the steam of warm water; drying and rubbing them very well, immediately after, with a mixture of the juice of sweet oranges, and mucilage of okrey: hard, swelled, discoloured, and stiff knees, may be treated in the same manner; the hard and sensible swelling of the legs may be bathed in warm soap-ley, or sea-water, and chafed with  
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the juice of sweet oranges, in which some of the dried rind has been infused; keeping the affected thighs and knees wrapped in flannel. I recommend not here an embrocation; or unctio<sup>n</sup> with oily medicines, from which I have observed bad effects in the Scurvy; tho' these are generally good in contractions of the muscles, and tendons, from other causes. As soon as the contractions and hard swellings are resolved, the knees grown supple, and the swelling of the legs is subsided, cold sea-water must be used in place of the warm: these fruits are also the best topical remedies for scorbutic nodes, and exostoses; and the saponaceous<sup>a</sup> decoction of the fresh green leaves and twigs of guaiac, will be a good internal medicine for these obstinate tumours. Ripe plantains and bananoes, being very emollient and saponaceous, will

<sup>a</sup> The negroe women in the West Indies frequently use a decoction of the green leaves and twigs of guaiac, for washing clothes, instead of a soap-ley. I have been told that some old negroe women make an effectual cure of the Yaws by a long course of this saponaceous decoction, an exceeding low vegetable diet, and sweating: an extract of the fresh leaves and young twigs of guaiac, would, doubtless, make a much better medicine, than the decoction, or extract of the old dried wood, since it has a much greater proportion of saponaceous substance, with which the resinous particles are intimately mixed, and thereby rendered more miscible with the animal juices.

make an excellent epithem for contracted muscles, rigid tendons, and stiff knees; and in northern climates, boiled chickweed, mallows, spinage, or orache.

83. The cure of the fourth species (§ 22.) is to be attempted by attenuants, demulcents, emollients, diaphoretics, sudorifics, bathing in warm sea-water; afterwards corroborating with the cold bath, proper internal medicines, and exercise.

84. The best internal remedies against the fifth species (§ 23.) of the Scurvy are, the fresh juices of limes, or lemons; shad-docks; pomegranates; cashew-apples; and all subacid and subastringent fruits; verjuice; spirit of vitriol; Peruvian bark; a decoction, or an extract of the twigs of green guaiac; lime-water; tar-water; a decoction of the roots of sharp-pointed dock, and orange-peels, acidulated with acacia, and sweetened with molosses; and the like.

85. For putrid ulcers of the gums and mouth, a decoction of Peruvian bark, or a tincture of myrrh, acidulated with lime-juice, and sweetened with honey or molosses, will make a proper gargle. I never saw, in the West Indies, a luxuriant rising  
of



of spungy flesh from ulcerated gums: when this happens, it will most effectually, I suppose, be restrained by spirituous medicines, and astringents; such as a tincture of Peruvian bark, or camphorated spirit of wine, with sugar of lead; or a strong decoction of oak-bark, or agarick of the oak, or bistort, with alum, and some spirit of wine: sea-water is a tolerable antiscorbutic gargle, and may be improved by mixing with it some alum, and tincture of myrrh. I am of opinion that unguent. ægyptiac. and other stimulating and corrosive applications ought to be avoided, especially the acid corrosives; since they occasion violent and long-continued pain; which necessarily produces an afflux of humours to the affected parts, and speedy renovation of spungy flesh.

86. For Scorbutic Fluxes, first administer a purgative of rhubarb; then give a spoonful frequently of a strong decoction of the roots of tormentil; to which is added some German acacia, with a small proportion of tincture of saffron: if there is a probability of the intestines being exco-riated, some Armenian bole, with a little alum, may likewise be added: A grain of

opium given at bed-time will have a good effect, if the flux is immoderate, with violent griping. Let the patient's diet consist chiefly of rice; and flour-gruel: this last article is not only a good restorative, but an excellent medicine, especially in excoriations, and ulcerations of the intestines; being deterfive, anodyne, styptic (§ 105), and agglutinating: rice-water, or an infusion of dried roses, or red saunders, or saffrafas, in steel'd water, will be very proper for common drink. If the disease is attended with a tenesmus, and pain in the rectum and colon, thin flour-gruel injected by glyster will have a good effect; and if the dejections are very frequent, or if fluid blood is evacuated, the gruel for glyster may be rendered more styptic and anodyne, in the manner specified in the sequel (§ 105); and by mixing some laud. liquid. with it.

87. The captain of a ship of war having his crew scorbutic, will no doubt endeavour, as soon as his orders and other circumstances will admit, to put into a port,

\* Wheat flour has a greater proportion of the native oil and essential salt of the grain than starch, and is therefore more nourishing, anodyne, and deterfive, but less styptic.

that



that the scorbutic patients may be set on shore to be cured; or, at least, purchase a sufficient stock of fresh vegetables and fruits for curing them on board. If necessity obliges him to land them in an uninhabited place, the regimen already specified (§ 67.), should be continued; and there it will have a better effect than on board, for the reasons before-mentioned (§ 30.); and likewise because the patients will have it not in their power to obtain any salt meat from their mess-mates on board. In such places, in the West Indies, parties should be sent into the woods, in quest of mountain-cabbage, and fruits, for the scorbutic patients; this cabbage, which is only the leaves of a species of pimento, in bud, may be eaten either boiled, or as a salad, with vinegar, oil, and mustard; or with vinegar and sugar. In many parts, neither this, nor any salutary fruit is produced; but there is plenty of guaiac almost every where in the West Indies; of the green leaves and twigs of it a decoction may be made, which is a good antiscorbutic: and in northern climates one or more of the simples before specified (N<sup>o</sup>. 12 of § 65). may generally be found;

and frequently salading, such as purslain, cresses, scurvy-grass, succory, common brook-lime, forrel, the young leaves and roots of dandelion; which are of good use in the scurvy.

88. An occasional house should be erected for the reception of the sick, when landed on a desert coast; which is far preferable to tents, in hot, as well as cold climates. In the West Indies the properest situation for such a temporary infirmary is on dry sand, or gravel, near the sea-shore, the subterraneous water being at least four feet from the surface; having no marshy ground to windward, nor in its neighbourhood; nor much close wood very near it: the long diameter of it should make right angles with the common line of direction of the land-breeze; consequently the sea wind which commonly blows nearly in an opposite direction to the former, and is too fresh and drying for greatly reduced and morbid persons, will also be prevented from blowing full into the house, which is supposed to have a door in each end; which may be provided for with canvass-screens. Pimento being very porous, light and dry, is the  
pro-



properest wood for constructing such an occasional house: its perpendicular sides may be formed by studs about four or five feet high, at intervals of six inches, slightly wattled, and thatched with pimento leaves; and topped with a slender wall-plate, supporting slight rafters, that may be reinforced with proportionable collar-beams, and single purlings; the joinings of all these, and the laths being secured with spun yarn; and thatching the roof with pimento leaves. The platform for the bedding of the sick should be raised about fifteen inches from the ground, and covered to the thickness of five or six inches with very dry pimento leaves: in cold climates the studs may be drove in close to each other, and their interstices filled with moss.

89. The following regimen I would recommend for scorbutic patients in the King's Naval hospitals. 1. For breakfast, water-gruel acidulated and sweetened as before directed (N<sup>o</sup>. 1. § 67.) 2. For dinner, fresh meat-broth, with greens, roots, and some rice boiled in it; infusing therein, when boiled, some aromatic dried herb, such as mint, thyme, marjoram, with a lit-

tle pepper ; to be eaten with light soft bread : allowing meat to those only who are much recovered. 3. For supper, boiled rice, to be eaten with a suitable proportion of wine, and sugar : the patients may, sometimes, by way of change, have cod-dled apples with milk and sugar, for supper, when this fruit and enough of milk can be had ; and in defect of it, a fallad, with bread and butter ; or gooseberry, currant, cherry, or prune-pyes, or flummery. 4. Each patient ought to have half a pint of wine a-day, besides what is eaten with rice ; or a pint of good cyder, or punch in lieu of it : subacid and subastringent wines are generally the best for this purpose. 5. In the West Indies, each scorbutic patient should be allowed one or two sweet oranges a-day, or pine-apples, cashew-apples, or other subacid fruit in lieu of oranges ; and water-melons to satiate thirst : unripe plantains roasted, in place of biscuit ; except in cases of the first species of Scurvy (§ 19.) wherein Cassada bread will be better. Under this regimen, scorbutic patients will recover much faster than they commonly do on the stated hospital diet ; which consists chiefly of boiled fresh beef  
and



and broth ; and be much less liable to dangerous diarrhoeas.

## C H A P. V.

*Of the SCURVY, chiefly from acid, and  
acescent farinacious Food.*

90. **A** True Scurvy may be generated by acid, and acescent farinacious food; that is, of hard digestion and assimilation ; such as heavy, sour, leavened bread, dense, unfermented flour pudding, and dumplings, and pease pudding; in habits previously relaxed, and weakened by any of the forementioned predisposing causes (§ 4, 5. 33.); whence a prevalent acid, and a viscid pinguious slime in the primæ viæ; and from these a multitude of ills, which are accurately recited in the Aphorisms (§ 63, 64. 71, 72, 73.) of the incomparable Boerhaave : the chief ultimate effects of these causes being a great viscosity of the juices, and sometimes even a coagulation of some of them; obstructions, consequent putrefactions, a most lothsome Scurvy, and death: a less degree of this species of cacochymy, with greater elasticity  
of

122 *Of the SCURVY, chiefly from acid,*

of the solids, in concurrence with some other causes in the spring (§ 111.), is the source of many cutaneous diseases.

91. The said food (§ 90), with lean cheese, but most commonly with a little bacon too, or hung beef, and salted and dried fish, generates more or less of a Scurvy, every Spring, and sometimes also in the close of the Autumn, in many of the country people, and others of a low rank in Cleveland, even in places where the air is naturally dry and pure; which is most prevalent when the month of March, or April, is rainy, with cold, northerly, and easterly winds from the sea; and continues to increase for some time after with the succeeding warm weather, till towards the end of May; after which it soon disappears, and most commonly before it has reached the second stage, or even assumed the exact form of the genuine Scurvy; for it increases not so fast, nor is so easily cured as the Scurvy that is chiefly excited by salted animal food.

92. Several cases of this scorbutic disorder (§ 91.) have lately come under my observation; most of which began in February last, and were aggravated by the rains,



rains, and cold northerly and easterly winds that happened in the close of April, and beginning of May: this weather also occasioned several new invasions; and a few cases appeared not till after the commencing of the succeeding warm dry weather; when some of the former were heightened, and appeared in the following manner. A sense of great heaviness affected the whole body, which was feeble, listless, of a dark or dingy hue, and emaciated; with a laxity of the muscular flesh, dryness, looseness, and sometimes rigidity of the skin: and ascidity and viscid slime most commonly prevailed in the primæ viæ; producing sour belching, a strong breath, chiefly in the mornings, weakened digestion, costiveness\*, a sense of oppression, or great uneasiness about the præ-

\* This costiveness proceeded seldom from indurated fæces; for these were most commonly soft, with a pinguious viscosity, by which they seemed to adhere to the vilous intestinal coat; and the patient went seldom to stool, voided little, and with difficulty: which probably was chiefly occasioned by a diminution of the secretion of Bile, and of its salutary bitterness, acrimony, tenuity, and saponaceous quality, from an acid tendency and viscosity of the blood; whence a laxity and debility of the intestinal canal, a languid peristaltic motion, paucity of intestinal juices, and a desire of going seldom to stool; the nutritious particles were not extracted from its contents, and the body became emaciated, even when the appetite was tolerably good.

cordia,

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cordia, and straitness of the breast, or confined respiration, especially after brisk motion, sometimes with a little cough: the patient's sleeps were at first longer and sounder than usual; at length they were often short and turbulent, sometimes with feverish heats, which began with chilliness, and receded in the mornings, with little or no sweating. In some the gums were a little swelled, and of a livid cast, in others not sensibly affected; the urine was most commonly thick and high-coloured, and often in less quantity than usual; the pulse rather softer and weaker than in health: in many there was only a faint appearance of this disorder.

93. This disease (§ 92), in a few, was supervened by hard deep-seated tumours, with redness, some degree of inflammation, which, however, rarely terminated in supuration; these appeared most commonly in the extremities, with large bases under the skin, and were attended with intolerable itching, but little pain; sometimes they were soft and elastic, without any redness or discolouring of the skin, or pain, and only attended with itching: these tumours were in some measure critical, for  
on



on their accession, the oppression at the præcordia commonly ceased, the breast was relieved, the appetite and digestion were restored, the complexion became clearer, and the individual more vigorous and alert, provided there was no indolent swelling of the ankles; yet the gums, in this case, were always more or less affected. Two patients with tumours of this sort, had the legs swelled and feeble, with blotches of a dark red; the gums were swelled, and livid, and beginning to ulcerate, and the disease began to assume the form of a genuine and manifest Scurvy. All these (§ 93.) had dense viscid blood, with more or less of a fizy crust a-top, and a greenish coloured serum; and received some benefit by one moderate bleeding: this manifest Scurvy was only sometimes preceded by the disorder above recited (§ 92.).

94. This disease (§. 92.), however, had generally a tendency to the jaundice, which it sometimes induced in a high degree: after the commencing of the Jaundice, the disease was commonly soon and easily cured, or ceased spontaneously (§ 56.) in good constitutions: yet one case of this species of Icterus, which came under my observation,

tion, last year, was exceeding obstinate, and attended with scorbutic gums.

95. In one patient, aged 38, and of a puny and thin habit, towards the end of May last, the said disease (§ 92) having an icteric tendency, began to induce an œdematous swelling of the abdomen; which, however, was soon cured by some doses of rhubarb; salt of tartar; mustard; prepared steel; stomach bitters; a proper regimen, and exercise. In this case an acidity prevailed in the primæ viæ; the skin and subcutaneous fat became all at once exceeding loose; the patient was costive, with flatulencies; the urine thick, high-coloured, and scanty; and his sleeps were then short and turbulent; but the appetite was tolerably good.

96. A ship-carpenter, aged twenty three, and naturally of a good constitution, who usually ate much Suffolk cheese, and heavy leavened bread, had a confined respiration, which was aggravated by brisk motion, or working, sometimes attended with a slight dry cough; with an unusual proneness to sweat, debility, listlessness, costiveness; his appetite was tolerably good; his complexion clear, but rather  
paler



paler than in health: he was naturally exceeding difficult to be purged, and more so under this disorder, which retarded his cure. Oxymel of squills, and the squill-pills, combined with aloes, and the most powerful attenuating, inciding, and pectoral medicines; with boiled spinage, orache, tops of young rape, and butter-milk, did not, in the least, abate his disorder: he received most benefit by drinking sea-water, which, however, purged him not; and eating water-creffes, mustard, scallions, onions; and living on a light nourishing diet. This disease commenced in March last, and began to decline towards the end of May.

97. Some persons have a natural, or an acquired predisposition to the forementioned diseases (§ 92 to 95.), which afflict them in a greater or less degree every spring, and sometimes also in the close of the Autumn, and in Winter. The first of these (§ 92.) diseases, in one of my late patients, has always a scorbutic tendency (§ 93.), with ulcerated gums, and sometimes scorbutic tumours, especially in the spring, tho' he eats but very little salted meat, or dried fish. In another, the said disease, (§ 92.),

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which usually invades him in April or May, has an icteric tendency; and sometimes induces a manifest Jaundice: and a third, of a puny habit, has been threatened with a Dropsy from the said disorder (§ 92.), in the beginning of the last, and of the present Summer.

98. When this disease (92.), having a scorbutic tendency (93.), is much advanced, it begins to assume the form and genius of the Sea-scurvy; or that which is produced chiefly by salted meat, bad provisions, and putrid water; and may then perhaps be most successfully treated by the remedies that are most efficacious against this last-mentioned Scurvy: but in its early state, above-described, it is generally more obstinate than the Sea-scurvy; and yields not to the same medicines. One of my late patients under it, ate one orange a-day, and some spinage, orache, or common English mercury, and drank butter-milk for a fortnight, and abstained from salted and dense food, without being thereby much relieved: another under the first disease (§ 92.) solely, which seemed to have more of an icteric than scorbutic tendency, reaped not the least benefit by a fortnight's use  
of



of the ſame vegetables. This ſcorbutic diſorder, in its firſt ſtage, is probably that which, by ſome authors, is not improperly termed an acid Scurvy: yet, in an advanced ſtate, it may, in conſequence of obſtructions, be as productive of putrefactions as any Scurvy whatever (§ 90.).

99. The remedies which I adminiſtered with moſt ſucceſs in this diſeaſe (§ 92), before it formed into a manifeſt Scurvy, or Jaundice, are the following: viz. a purgative, compoſed of equal parts of pure ſuccotrine aloes, rhubarb, and myrrh, with three or four grains of calomel, and as many drops of oil of juniper, made into pills with extract of wormwood, or gentian; and given at bed-time, in a moderate doſe, and often repeated: but to robuſt individuals, that were difficult to be purged, I gave pil. cocciaë with calomel; ſquill-pills, with aloes, myrrh, aſſa fœtida, and prepared ſteel, with enough of the extract of gentian to make them into pills. Steel had a remarkable good effect in this diſorder, by bracing the relaxed fibres and correcting acidities, and as the patient was commonly coſtive, I uſually mixed it with laxatives; ſalt of tartar; muſtard;

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water-

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water-creffes ; onions ; scallions ; an aperient and corroborative decoction of the following simples ; viz. the roots of turmeric, madder, polypody, sharp-pointed dock, sweet cane, galengal, ginger, orange-peel ; the leaves of celandine ; common nettle, and wormwood ; saffron ; juniper-berries ; chips of saffrafras ; antimony : molasses beer, medicated by boiling in the water of which it is made, orange-peel and juniper-berries ; or wormwood ; or the roots of sharp-pointed dock, ginger, and the leaves of nettles : lime-water was also of good use in this disorder.

100. These medicines, after giving an emetic (§ 99.), were likewise the properest on the commencing of a real Jaundice : but when the disease (§ 92.) terminated in a manifest Scurvy, with scorbutic tumours, without any icteric taint, one moderate bleeding was of use, if the patient was young and plethoric, with little or no swelling of the ankles : and if the blood discovered an inflammatory density, and fizziness, I exhibited the antiphlogistic method specified in the sequel (§ 115.) ; and, after subduing the lentor, prescribed with good success the acrid antiscorbutic, with  
emollient



emollient greens; the forementioned decoction; or medicated beer (§ 99.); ſteel; and ſometimes lime-water; and chafed ſwelled legs with a neutral mixture of vinegar and ſalt of tartar, with ſea-ſalt: or with a decoction of ſea-weed in ſea-water, with, or without, a little made muſtard; according as the ſwelling was more or leſs indolent and unelaſtic. A ſolution of the ſea-ſalt, or ſalt of tartar, in ſtale urine, is alſo a good embrocation for ſcorbutic ſwellings of the legs, and the fore-mentioned tumours (§ 93.): and the following regimen, which I preſcribed in theſe diſeaſes (§ 92 to 96), agreed well, and had a good effect: viz. broth made of the lean of freſh meat, with rice, or barley and onions boiled in it; infuſing therein, when boiled, ſome mint or thyme, and mixing a little pepper with it: ſometimes a little of the lean of meat, or freſh fiſh: coarſe rye-bread fermented with yeſt; boiled rice; barley boiled in water and ſtewed with currans; haſty pudding made of barley-meal: milk poſſeted with medicated moloffes beer, ſweetened, and rejecting the curd; boiled turnips and parſnips, when theſe could be had; roasted onions: abſtaining from things of a con-

trary nature, and using exercise, particularly that of riding.

## C H A P. VI.

*Of Scorbatic and Malignant ULCERS.*

101. **M**Ariners, by the nature of their employment, and the incumbrances with which the decks are crouded, are very liable to contused wounds on the skins; which seldom readily cicatrize in common seamen, who, for the most part, have more or less of a scorbatic taint, but commonly degenerate into foul and obstinate ulcers; succeeding rubs, and hurts on the skins, also greatly irritate these sores, and retard their cure: and when the Scurvy is much advanced, an inflammation commonly invades the scars of former ulcers on the legs, which terminates by an unkindly suppuration, or gangrene, in a foul Ulcer, which speedily increases to its former dimensions: otherways, Ulcers are seldom produced by the first, second, third, or fourth species of the Scurvy; and not very often by the fifth, except in the gums and mouth.



102. The first species from contusion, when attended with little or no manifest and general scorbutic taint, has a hard, firm bottom, of a dark red, or inclining to livid; with hard or callous, elevated, and livid edges; and discharges a thin, sharp, and sometimes bloody sanies: as the scorbutic taint increases, the sanies becomes thinner, and sharper, sometimes greenish<sup>t</sup>, or of various colours, frequently excoriating the skin, in the circumference, especially in the most depending parts of the sore: the bottom of the Ulcer grows foul, with tough, blackish or greenish sloughs, or viscid matter; and the skin in its circumference hard, uneven, livid, and sometimes scaly. This sort of scorbutic Ulcer generally continues very long, without enlarging much its diameter: it rarely

<sup>t</sup> I don't suppose that the greenish colour of the sanies, or foulness, in the Ulcer, is occasioned by a high degree of putrefaction (according to a late author); since it generally has no fetid or cadaverous smell, which is inseparable from animal juices, under a great degree of putrefaction: this colour, I suppose, proceeds from a particular mixture, and stagnation of different sorts of depraved animal juices; while their putrefaction is, in a great measure, prevented by some portion of the fine antiseptic juices, which ooze from the surface of the Ulcer (§ 54. 55.): in a gonorrhœa, it proceeds from a vitiated secretion in the glands of the urethra. In the West Indies, this running is sometimes plentiful, and greenish, when intirely void of infection.

generates spongy flesh, except in an advanced state of a general Scurvy, and seldom or never induces a caries of the subjacent bone; and even the worst appearance of it here exhibited is frequently unattended with any other symptom of the Scurvy: it contributes, if the discharge from it is considerable, to prevent an habitual Scurvy, and retard its progress (§ 27.)

103. This species of Ulcer being reduced, by proper remedies, to a very small compass, the juices still retaining some degree of scorbutic acrimony, it sometimes dries and incrustates over; while a thick pus is collected under; the crust at length bursts, and the ulcer runs afresh, and often bleeds by the least friction; the scab being taken off, another soon forms, with a suppuration under it, as the first: and in this state it frequently remains a long time, or till the circulating juices are restored to the most salutary state, unless proper topics (§ 116.) be applied.

104. Of this species (§ 102.) also are the Ulcers in the legs, which frequently happen to persons living a-shore, from a sharp, and often scorbutic humour; which, however,



however, are seldom attended with any other scorbutic symptom, except vehement deep-seated pains at the bottom, and the circumference of the Ulcer, which sometimes shift, or extend to other parts, like those of the Rheumatism, and are commonly most excruciating at the Spring and Fall; and greatly disturb the patient's repose: these are usually cleaner, of a bright red at bottom, and discharge a more laudable pus than the former (§ 102.); yet they have frequently callous edges, and hard, uneven, crusty, scaly, and livid circumferences; sometimes with varicose veins, in the parts above the ulcer; and sometimes the edges, and circumference of the Ulcer are inflamed, and attended with a violent and constant pain. Women who have a scanty and irregular discharge, or an entire suppression of the menses, are most liable to these painful Ulcers in the legs.

105. Another species of scorbutic Ulcer has a soft tumified base, with a spongy and foul discoloured bottom, and little or no callous edges: this is always attended with a scorbutic habit; and, in an advanced state

of the Scurvy, sometimes induces a caries of the adjacent bone.

106. A high luxuriant fungus of a dark red rising from the surface of an Ulcer on the leg, constitutes the third species: this sort yields no purulent discharge, or only a bloody sanies, and is apt to bleed by the slightest touch; and when incised, the bleeding is exceeding difficult to be stopt: it is always attended with a high degree of an habitual Scurvy; which increases apace after the appearance of this fungus, if the patient has not the benefit of a proper regimen. The first species (§ 102.) sometimes, and the second (§ 105.) frequently degenerate to this (§ 106.): it sometimes also begins by a livid tumour on the skin, in a scorbutic habit; as in the case of a lieutenant of marines, narrated by Dr. Lind (p. 169 of his treatise): it occurs not often in the West Indies. The caries, which sometimes invades the maxillary bones, in the last stage of the fifth species of the Scurvy, may be reckoned a fourth species. I proceed now to give some account of the malignant Ulcers I had occasion to see in the Torrid Zone.



107. After the arrival of the Greenwich man of war, at Port-Royal, from Ruatan, in March 1744, sixteen of her crew were sent to the Naval hospital at New Greenwich on the north side of Port-Royal harbour, with Ulcers in the legs and feet, attended with a caries of the subjacent bones, profuse purulent discharge, and swift consumption. A Fever of the remitting kind arose on board the Greenwich, at Ruatan, in the month of February, after a long course of rainy weather, which commonly preceded these malignant Ulcers, which generally broke out in the inferior parts of the legs, sometimes only in the feet: in some the disease was a true Spina Ventosa, beginning by acute deep-seated pain in the lower extremity of the tibia; the teguments at length became livid, black, and mortified, in a small round spot, which separating, discovered a black, or dark-coloured caries of the bone: the skin and cellular membrane in the circumference, were insensible, and flaccid; and being daily separated, or cut away, the ulcer speedily increased, so as to occupy, sometimes, all the lower portion of the leg, or the greatest part of the foot; leaving the subjacent muscles,  
and

and tendons bare, or covered with a smooth, soft and red spongy flesh. In others the disease seemed to begin in the skin and cellular membrane, by a kind of moist flaccid gangrene; the cellular membrane contained a thin stinking sanies, into which the fat seemed to have been dissolved; and sometimes it became black: the gangrened teguments being cut away, the muscles and tendons soon became covered with a smooth, red, spongy flesh, as in the first sort, thro' which a probe might be easily passed to the bone, which soon became carious. Others had old Ulcers that degenerated into this malignant species; and in this case, the bone became not so soon carious; the skin in its circumference was not mortified, but consumed fast by a profuse purulent discharge, which was greater, of a thicker consistence, and apparently more favourable than in the two first gangrenous sorts.

108. These (§ 107.) had a hectic fever, with nocturnal sweating, and swiftly consumed away till death put an end to their misery: such of them as had the affected legs amputated, likewise died; and all these by the tetanus, or rigid spasm of the mus-



cles of the lower jaw, except one, who was destroyed by a suppuration of the cellular membrane and periosteum of the whole thigh, and consequent separation of the muscles from each other ; and the bone, notwithstanding the greatest care was taken to prevent this by a proper bandage and attitude of the thigh. No scorbutic symptom appeared in any of them.

109. The second lieutenant of a 70 gun ship was seized with an Ulcer in the ankle, at Port Royal, in 1743 ; which was clean, of a bright red, and not very prone to generate spongy flesh, with a plentiful discharge of thick white pus: it was obstinate, and increased; the ankle at length swelled, and broke out in different parts, till it was almost wholly invironed with one continued Ulcer. The calf of the affected leg became quite extenuate, the whole habit emaciated, and the Ulcer yielded to no treatment, till the patient was transported to England ; then it healed up, and the morbid matter, being soon after translated to the lungs, brought on a pulmonary Consumption, of which the patient died. This is the only scrophulous case I ever saw in the West-Indies.

110. Two

110. Two cases of gangrenous Ulcers of the head occurred at New Greenwich Hospital in Jamaica, in 1745, from contused wounds: the wounded portions of the teguments mortified, and the cellular membrane was converted into a stinking sanies: the gangrene of the cellular membrane, and collections of sanies gradually extended in the circumference of the wound, and with it the mortification of the skin, frontal and occipital muscles, and their common tendon. Incisions were made in the teguments as the disease extended, to give issue to the sanies, which was sometimes quite black, and admit proper topics: the sphacelus having at length spread over the greatest part of the head, one patient became insensible, apoplectic, and died; and the other was carried off by the tetanus of the muscles of the lower jaw.



## C H A P. VII.

*Of the Cure of Scorbutic Ulcers.*

III. **T**H E first species (§ 102. 104.) of scorbutic Ulcer is always difficult of cure, if the sore has been of long standing, with a crusty hardness of the skin in its circumference, even in those who have the benefit of the most salutary diet, and have no scorbutic taint in the mass of blood, by reason of the long accustomed tendency of humours thereto, and the vitiated conformation of the vessels in the affected part: and after a cure is made, the old scar is very liable to break out again, especially at the spring and fall; but more so at the first than the last. At the spring, or time when there is the most sensible transition from an exceeding cold to a warm or temperate state of the air, because the habit then suffers a sudden and considerable relaxation, which is greatest at the surface of the body; and the perspiration being long and much diminished in the course of the preceeding winter, if very cold or rainy, especially in puny or morbid constitutions,

a con-

a considerable share of sharp and unsalutary recementitious humours are retained, which are thrown upon the skin, as soon as it begins to be relaxed by the increasing warmth of the advancing spring; a plethora is then also occasioned by the sudden rarefaction of the condensed juices. The vapours that may have been long pent up by frosts in the winter, and begin now to be abundantly exhaled, may sometimes contribute to increase these effects. Hence also it is, that persons of lax fibres and puny constitutions, are then most liable to be diseased, and to have former disorders increased. At the fall of the leaf, or time when there is the most sensible transition from a warm to a cold temperature of the air, the Ulcer is liable to recur; because the fibres, chiefly at the surface of the body, are then suddenly constricted; whence a diminution of perspiration, at least in lax and puny habits, acrimony of the humours, and a true plethora. Hence likewise the reason why bleeding has often a good effect at those times of the year; and why persons liable to indispositions from lax fibres and weak nerves, who are generally worst in the beginning  
of



of the summer, frequently acquire strength and tolerable health towards the close of the autumn, provided the warm or temperate weather is not then too quickly succeeded by an extreme of cold; and that the weather be rather dry, and the air where the individual lives, naturally good. But those who have internal obstructions, or collections of pus, or ulcers, are then necessarily much affected: for, besides the above-mentioned effects, a greater proportion of humours are determined inwards, by the sudden increment of external cold. Sometimes the scar of a former Ulcer of the leg becomes inflamed and ulcerated, from intense cold in winter, whereby the vessels become contracted, and the juices condensed, or coagulated: from this cause also proceed kibes. It must be observed, that what is said here, with regard to the seasons, relates only to cold, or temperate climates.

112. The indications of cure relative to the first species (§ 102. 104.) of Scorbutic Ulcer, being unattended with any considerable degree of scorbutic taint, are, 1. To attenuate the blood, if an inflammatory density or viscosity of it prevails; and  
divert

divert the current of sharp humours that tends to the Ulcer, and carry these off by the natural emunctories. 2. To promote any natural or accustomed periodical evacuation that may have been obstructed; such as the menstrual or hæmorrhoidal flux. 3. To correct the scorbutic acrimony of the juices. 4. To corroborate the fibres. 5. To assist, as much as possible, these medicines by proper topics.

113. The sharp humours that flow to the Ulcer are most effectually restrained, by having their course determined in a contrary direction, by raising a gentle salivation with calomel. But this being sometimes unnecessary, and prejudicial to some constitutions, under particular circumstances; (§ 121.) we ought first to have recourse to the other gentler remedies, that are most appropriated to the nature of the case; which, with suitable topics, will frequently make a perfect cure. The experience which these two last years of my practice have afforded in the land scorbutic Ulcers of the legs, of the first species, (§ 104.) enables me to give a more particular detail of the method of curing them.

114. An old Ulcer being aggravated, or a fresh one breaking out in the scar of a former



former Ulcer, at the spring or fall, attended with inflammation and violent pain, is exceeding difficult of cure at these periods: but more easily gives way to gentle remedies, after the commencing of moderately warm weather in the first case; and in the last, when the winter is well advanced, provided the weather be serene, and not too intensely cold, nor very moist.

115. In both these cases (§ 114.) being unattended with any manifest scorbutic taint in the mass of blood, the first thing necessary is to draw about a pound of blood from the arm, in order to abate the inflammation, and lessen the flux of humours that tend to the ulcer; and if the blood is fizy, or very dense and tenacious, as it is usually in these cases, bleeding must be repeated, if the constitution is tolerably good, and nitrous attenuants administered, with infusion of elder flowers; keeping the belly open with soluble tartar and gum guaiac, or with equal parts of cream of tartar and sulphur: for the excruciating pains attending these Ulcers, have a near affinity to the Rheumatism, and are most successfully treated in the same manner. The inflammation and pains being, under this treatment,

ment, much abated, let the patient be gently purged every third or fourth day for some time, or according to his personal habit and the state of the Ulcer, with calomel, Glauber, and polychrestic salts; or with the sal. cath. am. in defect of the sal. Glaub. giving on the intermediate days a decoction of the woods, with antimony; or molasses beer, medicated with black spruce, or with any other aperient, and corroborative antiscorbutic simples; or Plummer's æthiops, made into pills with gum guaiac, and extract of wormwood, or gentian; the pilul. æthiop. of the Edinburgh Dispensatory, or the antiscorbutic juices. If the patient, being a woman, has the menses obstructed, these must be promoted by proper emmenagogues: the patient abstaining from malt liquor, salted meat, dried fish, cheese, and every thing that is hard of digestion, or productive of slime in the first passages, and a lentor in the mass of blood; and living on a diet of a contrary nature: yet both the palliative and perfect cures of this sort of Ulcer depend in a great measure on proper topics, which are exhibited in the sequel. What is here said (§ 115.) relates chiefly to the  
Scorbutic



Scorbutic Ulcers in the legs of persons living a-shore ; (§ 104.) which at particular times, chiefly about the spring and fall, are attended with most excruciating pains, and a fizy rheumatic state of the blood. The first species of the foul Ulcers of seamen, (§ 102.) that are nearly of this sort, are seldom so painful as the former, or accompanied with a fizy state of the blood, and very seldom or never so in the West-Indies : therefore bleeding and nitrous attenuants, will in these be frequently unnecessary.

116. The Ulcer (§ 104.) being deep, red, inflamed in its circumference, and attended with constant pain, which is commonly most excruciating in bed, and deprives the patient of sleep, the most anodyne topics are indicated : a cataplasm of milk and bread is tolerably anodyne, and deterfive ; but is pernicious by its relaxing quality, enlarging the ulcer, and increasing the current of humours that tend thereto, and the obstinacy of the sore. In this case every kind of salve that has the least stimulating quality, aggravates the pains and ill-natured disposition of the Ulcer : I was therefore led to make trial of the common

book-binders paste; which is made by mixing wheat flower or starch (§ 86.) with cold water, to the consistence of new cream; then putting this mixture in a proper vessel over a slow fire, and stirring it about till it boils. This paste, by its exceeding smooth and soft substance, is perhaps the most excellent anodyne, especially in very deep and painful Ulcers, and far exceeds my expectations. It seldom fails to ease, and frequently removes excruciating pains, provided the lentor and acrimony of the blood are previously subdued by proper remedies and diet; and being of a styptic nature, it repels humours, and consequently both incarns and cicatrizes. It may occasionally be rendered more styptic and repellent, by boiling some red roses, red faunders, or peruvian bark in the water, before the flower is mixed with it; or more repellent and anodyne, by mixing with this water some of the juice of plantain, house-leek, or of any other of the cooling, attenuating, and gently styptic plants. I have made a complete cure of some old Ulcers with this topic only. The method, however, I commonly use, is to apply the paste till the Ulcer is incarnated, or at least  
till



till the pains that attend it cease, or are much abated; dressing it after with equal parts of basilicon and ung. desicc. rubr. or with this last only. But if there is spongy flesh, or callous edges, or if any foulness remain in it, or if it is liable to scab over at cicatrizing, I dress with empl. saturninum (§ 117.)

117. I have not had an opportunity of trying the effect of the flower paste in the first species of the Scorbatic Ulcers of Seamen, (§ 102.) with foul, livid, or greenish bottoms, and callous edges. The most successful dressing that I have experienced in this sort of Ulcer, is the empl. saturninum, which is composed of an amalgama of equal parts of crude mercury and pewter, chalk, and a little axunge. It is perhaps the best consumer of callous edges, and most efficacious cleanser of foul Ulcers; which I suppose it effects chiefly by the power which chalk possesseth of dissolving animal substances, (see Dr. John Pringle's appendix to his observations on the diseases of the army, exper. 23.) and partly by the attenuating and dissolving properties of the mercury; the equal compression of the margin and surface of the

Ulcer by this plaster, which should always be spread on leather, also contributes to repress elevated, or callous edges and spungy flesh: the growth of this last it also checks by being of a cold nature and void of acrimony, in consequence whereof it repels humours, and eases pain; and therefore readily incarns and cicatrizes, and is greatly preferable to acid or alkaline corrosives, which excite most vehement pain, a consequent afflux of humour to the sore, and a speedy renovation of spungy flesh or a troublesome eschar. One plaister of this sort will serve above a week, and gives very little trouble in dressing. I usually mix with it a little of the common mercurial plaster, to make it more styptic.

118. But if the Ulcer is very deep, this plaster will be improper, because it cannot apply to the bottom of the sore. In this case it increases pain, and produces not the good effects before-mentioned: (§ 117.) for these Ulcers, an ointment may be made of mercurial ointment and chalk, or of equal parts of this and bisicon; or by reducing the saturnin plaister to the consistency of an ointment, with axunge or palm oil. A pledget armed with this ointment,



ointment, may be applied to the bottom of the Ulcer, and the saturnin plaster laid over it. If this answers not, the flower paste may be tried.

119. The saturnin plaster is also the best dressing for Ulcers in the legs of persons living a-shore; especially if foul at bottom, or with callous edges, provided they are not deep nor attended with inflammation; since, in this case, it irritates by its hardness, and exasperates the sore. Last autumn I cured a woman of a robust and full habit, aged 46, living at Broughton near Stokesly, of four small Ulcers in one leg, and two in the other, with a hardness and lividity of the skin of several years standing, chiefly by means of the saturnin plaster, which was mixed with about a third part of empl. merc. and spread on a large piece of leather, so as to surround the whole ankle; whereby it corroborated the ankle, and more effectually repelled humours, and softened the indurated skin. In order to facilitate the cure, she took fourteen calomel pills on so many successive evenings, and purging with sea-water every second morning during that time; bathing the affected ankles in warm soap-ley twice

a-day: the calomel, notwithstanding, affected her mouth a little, which was an advantage (§ 124.): after this, I directed her to pour cold spring-water on the ankles, every morning and evening till the Ulcers were cicatrized. The cure still holds good, tho' the catamenia have long since left her: the Ulcers were prevented from recurring this last Spring, by means of purging salts, nitre, strengthening and resolving plasters; and the cold pediluvium. I have observed that nothing is more conducive to the cicatrizing of old Ulcers in the legs, than the cold pediluvium.

120. An Ulcer in the leg, if the skin in its circumference is very hard, livid, scaly, and uneven, can seldom be cured without a salivation, and sometimes will not yield even to this: if the methods already specified prove ineffectual, or if the Ulcer is of the sort here mentioned, a salivation will be advisable, if consistent with other circumstances.

121. In men of a good constitution, and under a middle age, a salivation will generally be successful; and if the disease should happen to be too obstinate even for this treatment,



ment, little or no bad effect will result from the salivation. In women of a lax tender habit, whose Ulcer proceeds chiefly from a suppression of the menses, or is thereby exasperated, a salivation, especially if raised pretty high, commonly confirms this suppression, and greatly increases the laxity and debility of the habit, and obstinacy of the Ulcer: yet I have known a woman of a good constitution have a plentiful discharge of this purgation in the middle of a high salivation, tho' it had been suppressed for some time before.

122. A woman of lax fibres, aged thirty five, living near Stockesly in Cleveland, was gently salivated for a painful Ulcer in the interior part of the ankle, of several years standing; the menses, which before were scanty and irregular, were wholly suppressed by the salivation; her habit was considerably weakened; she became a little dropfical; the Ulcer, and violent pains attending it were aggravated; these pains, which were most excruciating in bed, broke her rest, and greatly increased her weakness and indisposition: being in this state, when she applied to me in February last, I purged her moderately three times with

with pil. cocciaë, which agreed well with her, at intervals of five days ; on the intermediate days, and for some time after, she took some pills, composed of laxatives, and deobstruents, with a small proportion of aromatic and steel corroborants ; together with a small dose of regenerated tartar, rubbed with a few drops of oil of juniper twice a-day, in a little juniper-berry tea : she observed a proper regimen ; and the Ulcer was dressed with the flower-paste. On the seventeenth day of this course she had the benefit of the Catamenia ; the Ulcer mended apace ; and the pain of it soon ceased : after this she took some stomach-bitters, and prepared steel ; and was restored to perfect health.

123. In October and November 1753, I salivated a young woman, aged 25, of a leucophlegmatic habit, tho' naturally strong, for a foul Ulcer on the anterior part of the leg, with a callosity of the skin of the ankle in the circumference of the Ulcer ; during the height of the salivation, which was raised with great difficulty, the Ulcer incarned, and contracted apace, and the hardness of the skin diminished : the Ulcer being almost cicatrized,  
the



the calomel and unctiōn were discontinued; upon this the salivation immediately declined, and soon ceased; the Ulcer at the same time began to increase and discharge a thin sharp humour; the skin in the circumference, became harder, red, and unequal; and in fourteen days the sore extended to its former dimensions; tho' the patient took Plummer's æthiops twice a-day, and drank plentifully of the decoction of guaiac, from the decrease of the salivation: in the course of the salivation she had a small shew of the Catamenia; and for some months after was more irregular in this respect than she had been before the salivation.

124. Tho' the menses are sometimes suppressed by a salivation, or rendered irregular and scanty by the laxity and debility of the fibres occasioned thereby; yet I have observed that they are effectually promoted, after being long suppressed, (agreeable to the opinion of the famous Dr. Pitcairn) by a course of calomel, taken so as to occasion a little soreness of the mouth; if the patient has a good constitution, and no remarkable chlorosis. In this manner it is also very conducive to the healing of scorbutic

butic Ulcers, the humours that are thereby carried upwards making a revulsion from the Ulcer. An Intermitting Fever sometimes invades persons under cure for an Ulcer in the leg, after being reduced by bleeding, or purging, or both; whereby the habit being relaxed and weakened, the ulcerated leg swells, and the cure is greatly retarded. It appears by the following case, that an inflammatory lentor of the blood may subsist, in some measure, even under a salivation; a young man, aged 25, living in Gesborough, was, in the beginning of the Spring of 1754, salivated for an old Ulcer in the ankle; a redness, and constant and violent pain, with which it was then attended, continued to the seventh day of the salivation; it discharged a great deal of pus, under the flower-paste dressing, but incarned not at all: then I drew a pound of blood from the arm; in a few hours after this, the pain wholly ceased; some blood oozed from the surface of the Ulcer; the slight erisipelas disappeared; the Ulcer began to incarn, and sensibly diminished every day after till it was cicatrized: this patient's blood immediately separated into a fluid red blood, and



a serum of a dilute purple, which covered the former; the red blood remained some-time fluid, occasioned perhaps by its being instantly covered by the serum; but after coagulating, it discovered a little fizy crust at top, and was very dense, and tenacious; and the serum was whitish, and in great proportion.

125. A person advanced in years, having an inveterate cough, or dyspnœa at times, from viscid phlegm, with, or previous to the breaking out of, an Ulcer in the leg, must have this sore only palliated, when ill-natured, and attended with pain; by means of bleeding, lenient purgatives, nitrous attenuants, and the flower-paste; at other times encouraging its discharge, when scanty, with an increment of the above-mention'd affections of the lungs, by means of basilicon, and red precipitate, and aloetic purgatives with calomel; in order thereby to relieve the lungs: and if it should happen to heal up, an issue ought to be made in the same leg; and purgatives given at proper intervals, especially at Spring and Fall. Bleeding and purging are, for most part, absolutely necessary, at these

these times of the year, for preventing the breaking out of Ulcers in the scars of old ones that have been cured; especially in women under 45, who have no appearance of the Catamenia, who, in this case, ought, besides, to be purged once or twice each month. Sometimes, when a swelling and redness still threatened a rupture of the old scar, notwithstanding the exhibition of the antiphlogistic method, I have been under a necessity of giving calomel, till it occasioned a soreness of the gums, which making a revulsion, most effectually prevented the breaking out of an Ulcer.

126. Ulcers that break out in the legs, under an advanced Scurvy, or that are thereby aggravated, will yield to no treatment till the Scorbutic Cachexy is in a great measure removed by a proper regimen; then, if there is no caries of the subjacent bone, they commonly begin to look well, and discharge laudable pus, and incarn apace under the most simple topics, such as the leaf of the convolvulus before-mentioned, (§ 64.) or that of the plantain-tree; and in northern climates, the leaf of the plantago latifolia, or oxylapathum; or the saturnin plaister rendered  
more



more styptic by mixing with it a small proportion of the empl. mercur. or softer by melting it down with a little axunge, or palm oil. The liver-like fungus will be restrained as much as possible by the spirituous and astringent topics before-mentioned, (§ 85.) with gentle and equal compression, or with the green leaves of astringent plants.

127. A cataplasm made of oatmeal and a strong decoction of the common sea weed or saltwort in sea water, or pledgets dipt in this decoction, I would recommend as a common dressing for Ulcers with carious bones. The following cases are vouchers of the efficacy of this topic.

128. A woman, aged 25, of a good constitution, living near Ingleby in Cleveland, having, about two years since received a violent contusion on the anterior and superiour part of the leg; an Ulcer ensued, which became foul, very large, and yielded not to the topics that had been applied. On the 20th of January last, when she came to ask my advice, the Ulcer was about six inches in length and two in breadth, extending from the union of the superiour epiphyse beyond the middle of the tibia; with

with foul spongy flesh, and four holes that penetrated to the bone. I advised her to dress it daily with the above-mentioned cataplasm: (§ 127.) if the bone became bare, to rasp it with a sharp knife, and wash it with a little of the decoction of the sea weed at each dressing; and recommended a light, aperient, and cooling vegetable diet, which her poverty, indeed, obliged her to observe. She immediately retired to her father's, and pursued this course: I had not an opportunity of seeing her again till the 26th of May last: her leg was then quite sound and free from pain, and she gave the following account of the cure. By the fourteenth day of the said course, all the spongy, ulcerated, and unsound flesh was entirely separated from the bone, and sound flesh in the circumference, and fallen off; discovering about four inches in length and one in breadth of the anterior and interior side of the tibia, from the superior epiphyse downwards, which was smooth and whitish, with four black spots where it had been exposed to the air, being the dry carries: then a violent pain and great weakness seized the knee of the affected leg, so that she could not support herself upon it.

She



She rasped the bone every day with a thick edged razor, and continued the cataplasm: young firm flesh soon began to cover the bone from the circumference of the wound; the black spots disappeared, and in sixteen days the bone was entirely covered, without any sensible exfoliation: the Ulcer incarnated after and cicatrized apace under the same cataplasm, leaving, however, a small spot in the middle that was long of cicatrizing. When almost cured, a swelling seized the ankle, which of its own accord soon subsided. I have very lately observed a good effect from this cataplasm (§ 127.) in two ill-natured Ulcers of the leg from a violent contusion, that were not attended with a caries of the bone.

129. About the beginning of January last, John Peat, labourer, at Broughton near Stockesly, having an inveterate tinea capitis of many years standing, which growing more virulent in the preceding autumn than it had ever been before, descended on the left temple and side of the face, where it occasioned an ill-natured cancerous-like Ulcer, which penetrated to the zygomatic process of the os malæ, which felt rough and carious: by means of a

M

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gentle salivation, and a plaster compounded of equal parts of empl. epispast. and saturnin. with about a fourth part of foot, I cured the tinea; and the caries, by dressing it with pledgets dipt in a strong decoction of sea-weed in sea-water. After the bone exfoliated, and was covered with sound flesh, the Ulcer was incarnated and cicatrized under the saturnin plaister.

130. The caries attending the malignant Ulcers of the West-Indies (§ 107.) is probably too obstinate for any remedy yet known.

The gangrene, however, of the skin and adipose membrane, may be stopped by giving bark internally, and applying pledgets

*Dipt* ~~face~~ in the tincture of the bark, on the ~~face~~ *face* ~~dipt~~ and sides of the gangrenous Ulcer, after cutting away the mortified portions of the skin, and cellular membrane.

F. I N I S.



